UNITED STATES AIR FORCE ACADEMY CATALOG 1972-1973

Colonel David R. Scott, Apollo 15 Commander, presented the space helmet he wore on the moon to Lt. General A. P. Clark, Air Force Academy Superintendent. The other Apollo 15 astronauts, Colonel James B. Irwin and Lt. Colonel Alfred M. Worden, were present at the Academy ceremonies. The three Air Force officers comprising the Apollo 15 crew named their lunar lander "Falcon" for the Academy mascot. The space helmet worn on the moon is shown on the front cover of this catalog. The cadet symbolizes the future Air Force officer who will play an important part in the nation's space program.

THE UNITED STATES AIR FORCE ACADEMY

annual catalog number 17 may 1972

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B.S., United States Military Academy

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To young men interested in the Air Force Academy

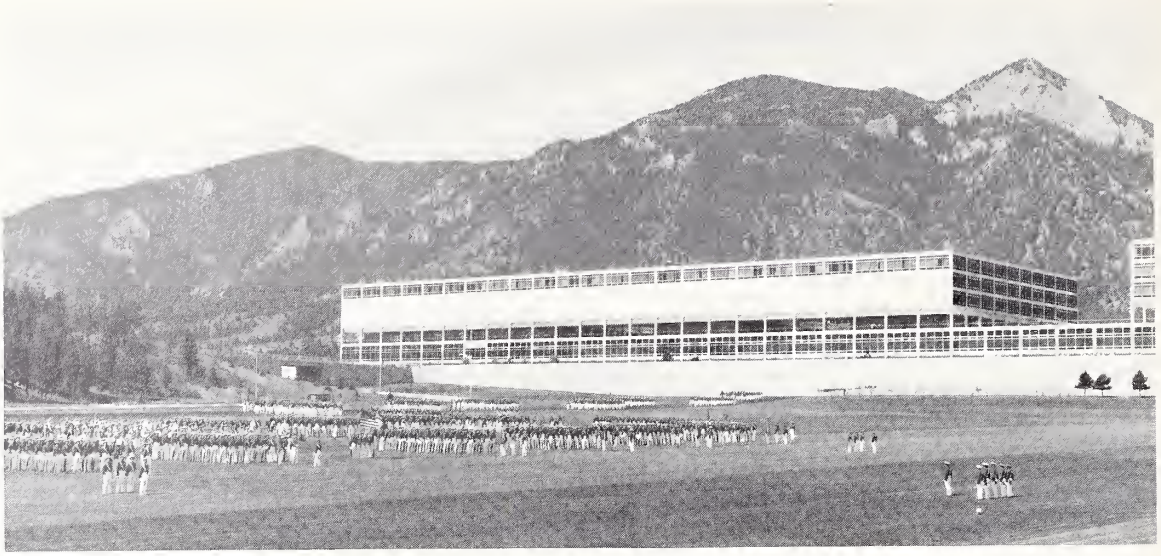
CHOOSING a career suitable to your particular aptitudes and interests is not an easy decision. It requires careful investigation and reflection. The fact that you are considering the Air Force Academy is an indication that you are not afraid of accepting a challenge — because the program to prepare men for careers of leadership in the U.S. Air Force is indeed a challenging one.

The Air Force Academy has evolved a unique academic program which provides each cadet with a broad education and offers the individual a specialty related to an Air Force career field. The Academy has a varied military program that allows each cadet to pursue his chosen interests in areas of flying and leadership. The athletic program prepares a cadet for the competition and teamwork of an Air Force career.

But the Air Force Academy offers more than an outstanding educational opportunity. It gives you the chance to become involved in an expanding mission — one in which our Air Force is assuming new roles protecting peace in the world while assisting importantly in stabilizing and improving the social environment within the nation.

If you have been successful as a high school student, you may want to give serious consideration to applying for an appointment to the Air Force Academy. If accepted, you will attend the Academy for four years to prepare for a rewarding career in the United States Air Force.

A. P. CLARK
Lieutenant General, USAF
Superintendent



CALENDAR 1972-1973

7 June 72	Wednesday	Summer Term Begins
3 July 72	Monday	Class of 1976 Enters
13 August 72	Sunday	Summer Term Ends
14 August 72	Monday	Transition Begins
20 August 72	Sunday	Transition Ends; Fall Semester Begins
2-4 September 72	Saturday - Monday	Parents' Weekend
4 September 72	Monday	Holiday, Labor Day
22 November 72	3:30 pm Wednesday	Thanksgiving Holiday Begins
26 November 72	7:15 pm Sunday	Thanksgiving Holiday Ends
16 December 72	Saturday	Final Exams Begin
21 December 72	4:15 pm Thursday	Fall Semester Ends; Christmas Leave Begins
7 January 73	7:15 pm Sunday	Christmas Leave Ends; Spring Semester Begins
23 March 73	3:30 pm Friday	Mid-Semester Holiday Begins
1 April 73	7:15 pm Sunday	Mid-Semester Holiday Ends
23 May 73	Wednesday	Final Exams Begin
28 May 73	Monday	Final Exams End
2 June 73	Saturday	June Week Begins
6 June 73	Wednesday	Graduation Day; June Week Ends

CONTENTS

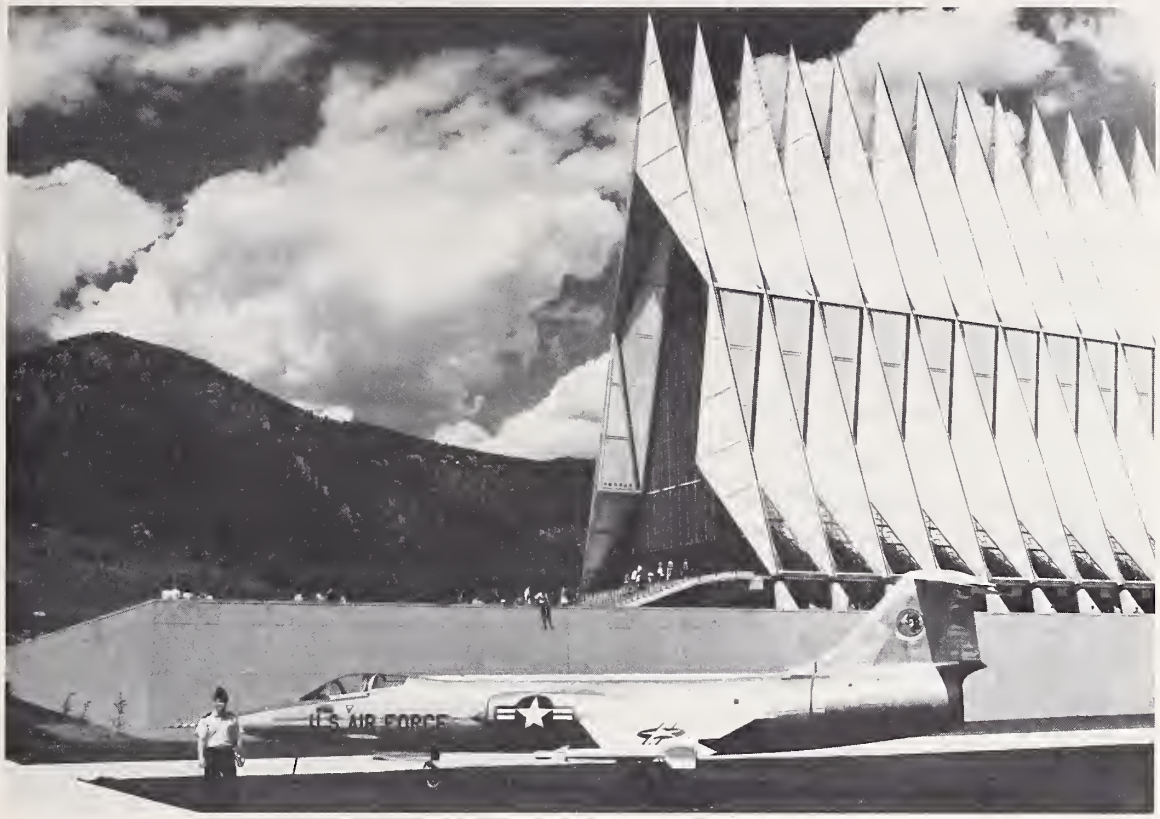
HISTORY

THE idea of an Air Force Academy was in the process of development for more than a third of a century. The evolution of American military aviation during World War I indicated the growing importance of airpower to national defense. The decisiveness of aerial warfare in World War II clearly demonstrated the future dominant role of airpower in defense of the free world.

Following the war, the Air Force became a separate branch of service and began to make proposals to establish an air academy along the lines of West Point and Annapolis. The Military Academy had been educating professional officers since 1802 and the Naval Academy since 1845. Now that air and space technology was in full development, the Air Force also needed an institution to prepare a nucleus of career officers dedicated to aerospace purposes and imbued with traits of character and leadership.

Proposals for the new academy were interrupted by the Korean war. At the close of this conflict, Congress authorized establishment of the Air Force Academy and President Eisenhower signed the legislation on 1 April 1954.

Plans for building the Air Force Academy began immediately. A site selection committee, composed of prominent civilian and military leaders, screened some 400 locations and visited proposed sites in 22 states. On 24 June 1954, the Secretary of the Air Force announced that the site eight miles north of Colorado Springs would be the permanent home of the Academy.



The Academy was established at a temporary location on Lowry Air Force Base in Denver until construction was completed at the permanent site. On 11 July 1955, in ceremonies at Lowry, the first class of 306 cadets was sworn in and the new service academy was dedicated.

Lt. General Hubert R. Harmon, who had been a member of the site selection committee, was appointed by the President as the first Superintendent of the Air Force Academy. Under his direction a program of education, with the versatility to meet rapidly changing development of the aerospace age, was carefully designed and perfected. The basic fundamentals and the newest findings of science were blended with the social sciences and the humanities to form a balanced program of education for future Air Force officers.

While a curriculum, a tradition, and a cadet way of life were being formed at Lowry, one of the greatest community building projects in the nation's history went into operation at the permanent site some sixty miles away. Moving at a fast pace on this prodigious project, the Academy builders had the cadet buildings ready for occupancy by the time the first cadet class reached its final year. On 29 August 1958, the cadets began to move into their new quarters located in the Rampart Range of the Rocky Mountains.

In 1962 the Cadet Wing reached its authorized strength of approximately 2,500 cadets. In 1964 Congress passed a law authorizing an annual increase in the size of entering cadet classes until a maximum of 4,417 cadets is reached in 1972. This legislation equalizes student strength at the Air Force, Army and Naval academies.

1. MITCHELL HALL (Cadet Dining Hall)
2. AERONAUTICS LABORATORY
3. FAIRCHILD HALL (Academic Building)
4. VANDENBERG HALL (Cadet Dormitory)
5. CADET GYMNASIUM
6. ARNOLD HALL (Cadet Social Center)
7. PLANETARIUM
8. HARMON HALL (Administration Building)
9. CADET CHAPEL
10. NEW DORMITORY
11. FIELD HOUSE

FACILITIES

THE Academy site encompasses 18,000 acres of former ranch land, divided into five mesas with valleys in between. This expanse of land allowed sufficient space for the flying training programs and for further expansion of the facilities to accommodate additional students.

Dominating the western side of the reservation are the majestic mountains with renowned Pikes Peak in the distance. The site adjoins the sweeping plains to the east. On all sides are spectacular scenes of nature to frame the modern campus. Situated at 7,200 feet altitude, the elevated campus seems remarkably appropriate as the location of an Academy to educate future leaders for space technology and exploration. The cadet area, which is the main complex of the Academy, is constructed on the mesa or ridge at the north end of the site. The buildings are designed in contemporary architectural style featuring glass, aluminum, steel and white marble. Most of the buildings have been named for famous Air Force leaders.

VANDENBERG HALL, a cadet dormitory, has 1,320 rooms, squadron areas, hobby shops and a cadet store. It was named in honor of General Hoyt S. Vandenberg, former Air Force Chief of Staff. A new Cadet Dormitory, constructed as part of the expansion program to accommodate larger cadet classes, has 830 rooms.

FAIRCHILD HALL, the cadet academic building, contains classrooms, laboratories, lecture halls and faculty offices as well as a cadet dispensary and the Academy Library. It was named for General Muir S. Fairchild, pioneer of Air Force education. Near the academic building are an Aeronautics Laboratory and a Radio Frequency Systems Laboratory.

MITCHELL HALL, the cadet dining hall, accommodates all cadets at one sitting for meals. It was named for General Billy Mitchell, pioneer of military aviation.

ARNOLD HALL, the cadet social center, includes a ballroom, auditorium, bowling alley, recreation rooms, lounges and snack bar. It was named in honor of General Henry H. "Hap" Arnold, World War II Air Force leader.

HARMON HALL, the administration building, houses the offices of the Superintendent and his staff. It was named for Lt. General Hubert R. Harmon, first Superintendent of the Academy.

THE PLANETARIUM, containing a Spitz projector which displays the heavens, is used for cadet instruction and public showings.

THE CADET GYMNASIUM AND FIELD HOUSE contain facilities for intramural and intercollegiate sports. The gymnasium has two swimming pools (one olympic size) and many athletic courts and areas. The field house is a unique sports arena which has a multi-purpose area utilized for indoor track and practice of football and other sports; a 6,600-seat basketball court; and a 2,600-seat ice hockey arena used for intercollegiate contests as well as recreation for cadets.

THE CADET CHAPEL, focal point of the cadet area, is striking in its design with 17 towering spires which admit light to the Protestant chapel through colorful stained glass. Catholic and Jewish chapels and an All-Faith worship room are located on the lower floor level.

Located in areas south of the cadet complex are: the Academy Hospital which serves the cadets and other military personnel and dependents; the Officers Club and bachelor and visiting officers quarters; Douglas Valley and Pine Valley family housing areas with public schools; the Community Center shopping area for military personnel and families; the Academy Preparatory School; and a Supply and Services area to support the Academy.

A 3,500-foot airstrip, located on the southeast perimeter of the Academy, serves the lightplane, sailplane and parachuting activitics of the Cadet Airmanship Program. The airstrip is also used by the Academy Aero Club for flying activities.

Falcon Stadium and Eisenhower Golf Course, located east of the cadet area, were financed with private funds donated through the Air Force Academy Foundation. The Farish Memorial recreation area in the nearby mountains of the Rampart Range was donated to the Academy for cadets and Academy personnel.

THE ACADEMY MISSION

The Air Force Academy provides instruction and experience to each cadet so that he graduates with the knowledge and character essential to leadership and with the motivation to become a career officer in the United States Air Force.

THE mission of the United States Air Force Academy is to educate and train career officers for the United States Air Force. The curriculum of instruction is designed specifically for this purpose. The Federal Government pays the expenses of each cadet through four years to obtain a nucleus of Air Force officers who will provide leadership for this branch of the military service.

The Air Force Academy accomplishes its mission through a four year program of academic studies, leadership and military training, physical education and athletics. Completion of the curriculum entitles the cadet to graduate with a Regular Air Force commission and a Bachelor of Science degree.

Inherent in the mission are the following broad objectives:

- To provide each cadet with the academic knowledge essential to his career as an Air Force officer.
- To provide each cadet with a broad military education as a foundation for his progressive development as a professional Air Force officer.
- To provide the necessary leadership training opportunities for the cadet to develop his capabilities and skills as a leader.
- To develop in each cadet the ideals of duty, honor, and service to his country.
- To develop in each cadet the physical attributes and skills necessary to meet the requirements of cadet and commissioned officer life.

Achievement of these objectives is the responsibility of the Academy Superintendent and his staff. The *Superintendent* is directly responsible to the Chief of Staff, United States Air Force, for the operation of the Academy. Key officers of administration under the Superintendent are: the *Dean of the Faculty* who implements the academic program and supervises the faculty; the *Commandant of Cadets* who executes the leadership and military training program and is responsible for the Cadet Wing; the *Director of Athletics* who carries out the physical education and intercollegiate athletic programs; and the *Director of Admissions* and *Registrar* who supervises programs of candidate information and cadet admissions, records, evaluation and counseling.

The mission of the Air Force Academy makes the school different from a civilian college or university. Cadets must maintain a regulated daily schedule, conform to strict discipline, live by an honor code, and develop qualities of leadership and dedication to service in the Air Force. Since cadets are preparing for a career of service to their country, the Academy must exercise discipline and control to insure that they evolve into enlightened officers with strong moral character, physical fitness, and leadership ability, and professional skills.

A new cadet is sworn into the Air Force when he first arrives at the Academy. His

ability to live under military discipline is tested during the next six weeks when he undergoes a rigorous basic cadet training program. The training is highly demanding mentally and physically. It challenges the young man and measures his edurance through continuous training and pressure. Upperclass cadets are leaders of this summer program under thc supervision of Air Force officers known as Air Officers Commanding.

During the cadet's entire first year he is expected to abide by fourth class rules which restrict his personal activities and confine him to concentrating on the Academy program of instruction. As the cadet progresses into his upperclass years, he is molded into a leader and the rules are gradually relaxed as he assumes leadership roles. However, an upperclass cadet must continue to abide by military rules and to maintain required standards of performance in academic studies as well as leadership and physical training.

The Academy curriculum offers many opportunities and challenges. It provides a general education in the sciences and liberal arts to equip all graduates with a broad background necessary to meet a variety of situations in their Air Force careers. The curriculum offers a widc scope of academic majors, enrichment courses and graduate programs. Cadets study the armed forces of the United States and foreign nations and gain first hand knowledge through field trips and special assignments to military installations. They receive an indoctrination to Air Force flying and may participate in extracurricular flying programs. They develop physical fitness for leadership and participate in many intramural and intercollegiatc sports.

The Academy expects a majority of its graduates who are physically qualified to fly to cnter flying training and become Air Force pilots or navigators within a year following graduation. Academy graduates with flying ratings are committed to remain in the Air Force for at least five years after completing flying training. Nonflying graduates are obligated to serve for five years following graduation from the Academy. Most graduates are expected to remain in the Air Force for a career. The curriculum of the Air Force Academy is designed to prepare and motivate cadets for such a career.

SUMMARY OF THE CORE CURRICULUM

For the Class of 1976

In Semester Hours (SH) and in Course Units (CU)

4TH CLASS — FRESHMAN

Summer

Mil Tng 100	5 (SH)
Phy Ed 100	2
	7 (SH)

Fall & Spring

Chem 101-102	5½ (SH)	2 (CU)
English 111-112	5½	2
Geog 120	2½ or 3	1
For Lang 101-102	5½	2
Life Sci 210	2½ or 3	1
Math 111-112	11	4
Mil Tng 115-116	2	0
Phy Ed 105-106	2	0
Phy Ed 120	1¼	0
Inst Tech 101-102	0	0
Armnshp 101	0	0
	38¼ (SH)	12 (CU)

3RD CLASS — SOPHOMORE

Summer

Mil Tng 200	2½ (SH)
Mil Tng 210	3
	5½ (SH)

Fall & Spring

Comp Sci 200	2½ or 3 (SH)	1 (CU)
Econ 211-212	5½	2
History 201-202	5½	2
Math 211-212	5½	2
Mech 120	2½ or 3	1
Physics 211-212	5½	2
Pol Sci 211-212	5½	2
Core Option or Math 210	2½	1
Elective	3	1
Mil Tng 220	2	0
Phy Ed 205-206	2	0
Phy Ed 220	1	0
	43½ (SH)	14 (CU)

2ND CLASS — JUNIOR

Summer

Mil Tng 300	5 (SH)

Fall & Spring

Aero 331-332	5½ (SH)	2 (CU)
El Engr 333-334	5½	2
History 300 or Pol Sci 412	2½ or 3	1
Law 210	1½ or 2	1
Philos 210	1	0
Psych 301-302	5½	2
Electives	16½	6
Mil Tng 320	2	0
Phy Ed 305-306	2	0
Phy Ed 320	1	0
	43½ (SH)	14 (CU)

1ST CLASS — SENIOR

Summer

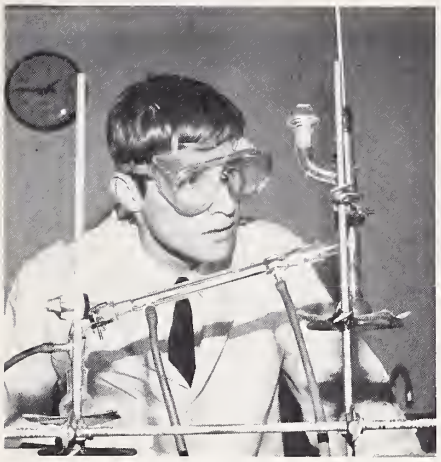
Mil Tng 400	5 (SH)

Fall & Spring

Astro 432	2½ or 3 (SH)	1 (CU)
English 430 or 450	2½	1
English 406 or Philos 440	2½ or 3	1
Law 400	2½ or 3	1
Electives	24½	9
Mil Tng 420	½	0
Phy Ed 405-406	2	0
Phy Ed 420	1¼	0
	39¼ (SH)	13 (CU)

TOTALS

Core Courses	140½ (SH)	36 (CU)
Electives	46½	17
	187 (SH)	53 (CU)



THE ACADEMY CURRICULUM

Graduation Requirements

To graduate from the Air Force Academy a cadet must achieve the following:

- Demonstrate an aptitude for commissioned service and leadership.
- Be satisfactory in conduct.
- Be proficient in physical education and military training.
- Complete the requirements for the core curriculum and for an academic major, passing all courses (or equivalents) for the core and for the major.
- Meet a minimum standard of a cumulative overall grade point average of 2.0 (C) and a cumulative grade point average of 2.0 in his major.

For the Class of 1976 the core and minimum major's requirements amount to fifty-three course units. Course units are used in place of semester hours to determine a cadet's minimum load for each semester.

The Core Curriculum

Each cadet is required to complete a collection of core courses designed to prepare him for a broad scope of activity as an Air Force officer. Core courses for the basic education of all cadets total 140½ semester hours divided among the areas of instruction as follows: physical education and athletics — 14½ semester hours; leadership and military training — 27 semester hours; academics — 99 semester hours. In addition to this core curriculum each cadet must complete approximately 46½ semester hours to earn an academic major in an area or subject of interest to him. This brings the total minimum curriculum requirement to 187 semester hours.

Testing and Grading

Departments use a variety of testing techniques, ranging from essay questions and themes to short-answer and multiple-choice items. The nature of the subject matter determines the type of test used. Quizzes are given over class materials at the discretion of the individual instructor. Most departments permit the instructor to construct tests for his own classes so that a portion of the final grade will come from measuring instruments devised with total freedom by the instructor. In preparing graded reviews and final examinations, most departments use a committee composed of several instructors.

The quality of a cadet's performance in a graded course is reported by means of letter

grades. These grades denote character of work and are assigned grade points as follows:

Grade	*Character*	*Grade Points Per Semester Hour*
A	Excellent	4
B	Good	3
C	Satisfactory	2
D	Passing	1
F	Failing	0

A number of courses, particularly in the Departments of Military Training and Physical Education, are graded on a P (Pass)/F (Fail) basis.

Additional letter grades of W (Withdrawn), WP or WF (Withdrawn while Passing or Failing, awarded after mid-semester), N (No grade, continuing without penalty), and I (Incomplete) may be awarded.

Cadets are graded on daily recitations, general reviews, and assignments prepared outside of class. For each 50-minute class period, the cadet is expected to devote 100 minutes to outside preparation. He may be called upon to participate and recite any time he is in class.

A progress grade report is published at mid-semester to inform cadets of their grades. Final grades and parents' grade reports are published at the end of each semester by the Director of Cadet Records, Office of Admissions and Registrar.

Cadet Achievement

Cadets are recognized for achievement in academic courses, military performance, and athletic participation as follows:

1. Cadets who excel in academic courses are placed on the Dean's list at the end of each fall and spring semester. The list consists of cadets whose grade-point average is at least 3.0.
2. Cadets who excel in military performance are placed on the Commandant's List at the end of each fall and spring semester. The list consists of the top 33⅓% in each class who have demonstrated the greatest cadet effectiveness.
3. Cadets who are on both the Dean's and Commandant's Lists are carried on the Superintendent's List denoting excellence in both academics and military performance.

Cadets whose names appear on either of these lists are granted additional privileges according to their class. They are recognized for this distinction by an insignia on the left breast pocket of the uniform. Cadets on the Dean's List wear a small silver star, those on the Commandant's List wear a silver wreath, and those on the Superintendent's List wear a silver star enclosed in a silver wreath.

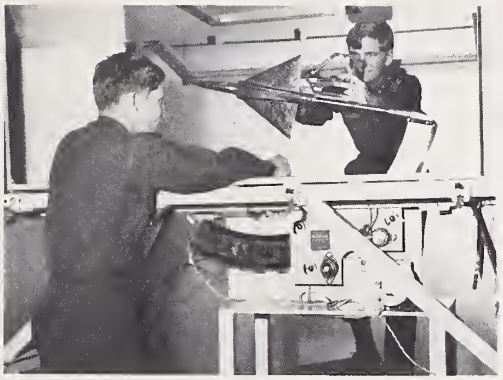
Athletic awards are presented at the annual awards banquet during June Week. Individual and team trophies are given to winners of intramural competition. Cadets receive letters and numerals to be worn on athletic jackets for their participation and achievement in intercollegiate competition. Special awards are given for outstanding performance in varsity sports.

Deficiency and Disenrollment

A cadet is deficient in his studies at mid-semester report or the end of semester/term when he has a grade of F or I in one or more courses (graded or pass/fail), a cumulative or semester grade-point average (GPA) of less than 2.00, or a major's GPA less than 2.00 in his first class year.

Cadets deficient in studies will be reviewed by a class committee at each mid-semester progress report and the end of each semester/term. The class committee will take final action on all cadets whose sole deficiency is one or more I grades obtained through no fault of their own, such as physical injury or sickness. Unless the class committee specifically states to the contrary, cadets deficient in studies will be placed on academic probation.

At the end of each semester or term the class committee will recommend to the Academy Board that a cadet who is deficient in studies be disenrolled for academic deficiency. Exceptions are made if the committee determines that both a cadet's overall performance and the probability of his successfully completing the academic program justify his retention. The Academy Board will consider the recommendation of the class committee and make final decisions.


Cadets retained by the Academy Board may be directed to accomplish one or more of the following: repeat or take a specific course during a subsequent semester, underload one course, change academic majors, attend a summer term in place of leave, be turned back to the next succeeding class, or take any other action deemed appropriate.

A cadet whose conduct or aptitude for commissioned service reflects doubt upon his willingness or ability to meet Academy standards will be placed on conduct or aptitude probation by the Commandant of Cadets. In cases involving gross misconduct, or when a cadet fails to meet the terms of his probation, the Commandant will refer the case to a Commandant's Board to show cause why the cadet should not be disenrolled from his appointment for deficiency in either conduct or aptitude. A cadet found deficient in these areas will be recommended to the Academy Board for separation. The Academy Board will consider the recommendation and inform the cadet of its decision.

Semester Schedule

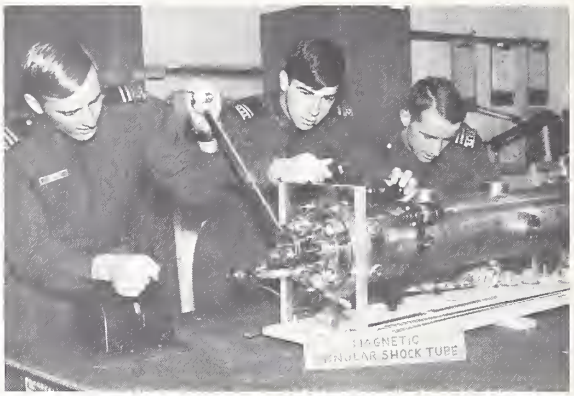
The yearly calendar of the Air Force Academy is based on Graduation Day. By agreement among the service academies, graduation has been established as the 40th Wednesday after Labor Day, making it fall from 2 to 9 June. The academic year begins the day after graduation. It is divided into three sessions: a summer term, a fall semester, and a spring semester.

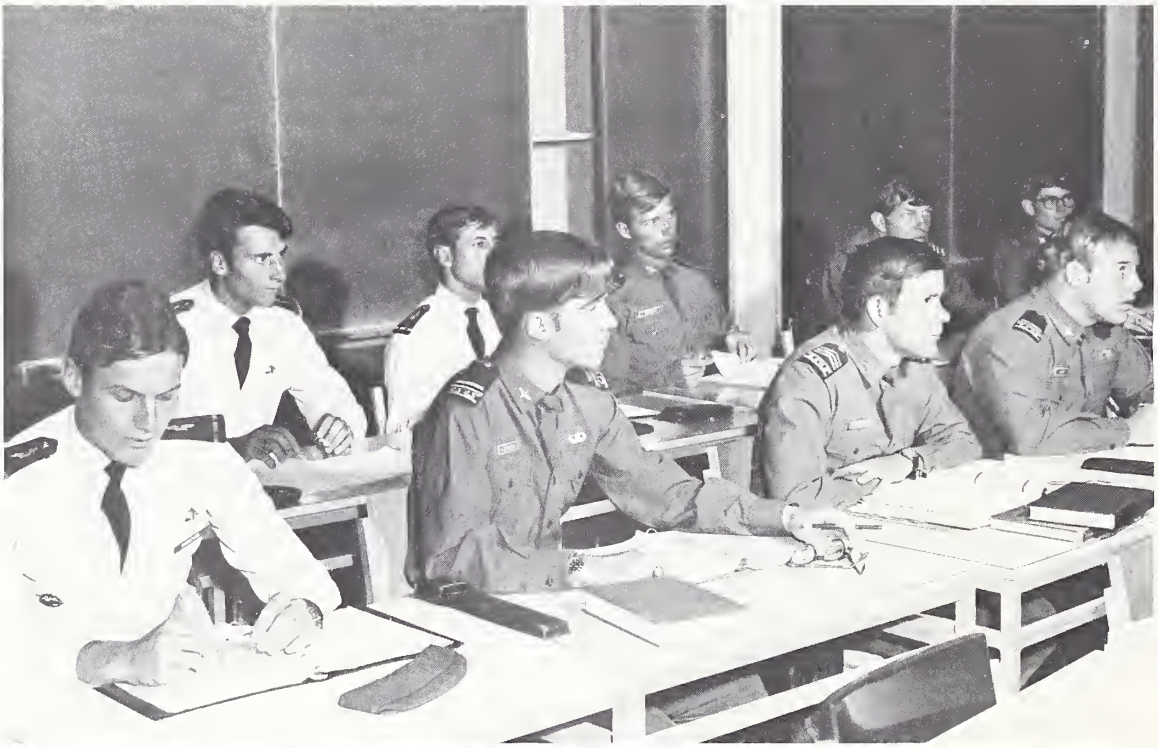
The summer term is approximately nine weeks long. Summer training programs begin immediately following graduation. The new cadet class enters the Academy the first week in July. The basic cadet summer training schedule consists of four days of processing followed by a six-week training period in which cadets of the first and second classes instruct the new cadets in military and physical training. The three upper classes receive military and leadership training at the Academy.

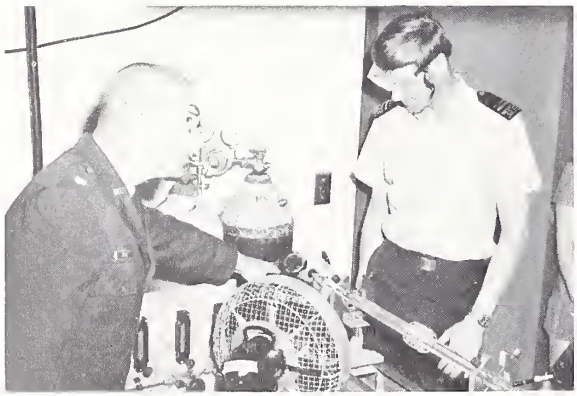
They are assigned also to other military installations for special training programs and for observation of armed forces activities. All cadets except the new class receive a leave during the summer. All classes have a transition period of four days following the summer term.

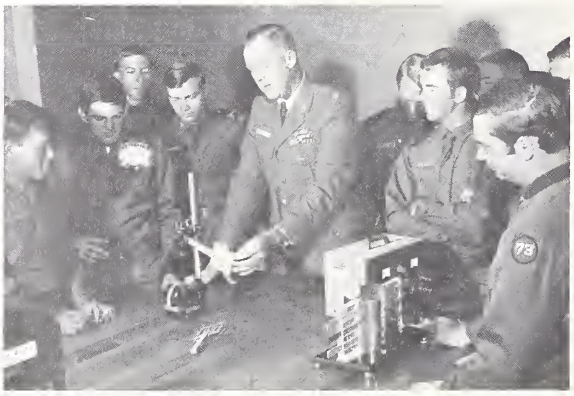
The fall semester contains between 17 and 18 weeks of instruction, beginning approximately 20 August and ending approximately 20 December when Christmas leave begins. The spring semester contains between 20 and 21 weeks of instruction, beginning the first week in January at the end of Christmas leave and concluding on the Saturday before graduation. Instruction during the fall and spring semesters encompasses academic studies, leadership and military training, and physical education and athletics. Each semester includes a final examination period of five days.

The academic week in the fall and spring semesters consists of five days, Monday through Friday, with seven 50-minute class periods. Saturday mornings are utilized for parades and other duties and events of the Cadet Wing.


MAGNETIC
ANGULAR SHOCK TUBE







Brig. Gen. William T. Woodyard

Dean of the Faculty

Permanent Professor

B.S., A.M., University of Missouri; Ph.D., University of Denver

CADET ACADEMIC PROGRAM

THE DEAN OF THE FACULTY administers the academic program through seventeen departments located within four major divisions. An outline of the faculty organization is as follows:

Division of Basic Sciences
- Department of Chemistry
- Department of Life and Behavioral Sciences
- Department of Mathematics
- Department of Physics

Division of Engineering Sciences
- Department of Aeronautics
- Department of Astronautics and Computer Science
- Department of Civil Engineering
- Department of Electrical Engineering
- Department of Engineering Mechanics

Division of Humanities
- Department of English
- Department of Foreign Languages
- Department of History
- Department of Philosophy and Fine Arts

Division of Social Sciences
- Department of Economics and Management
- Department of Geography
- Department of Law
- Department of Political Science

ACADEMIC INSTRUCTION

Course Offerings

The divisions and departments provide all instruction in the academic program. Undergraduate studies include the core curriculum and academic majors required for the award of a bachelor of science degree at graduation. Course offerings in the undergraduate program are designed to acquaint the student with major areas of knowledge in the sciences, social sciences, and humanities as well as to lay a foundation for Air Force careers. Thus, basic knowledge derived from a study of philosophy, psychology, history, economics, and government serve as a background for professionally oriented courses in military history, leadership, law, economics of national security, defense policy, geography and international relations. Similarly, the study of basic disciplines in mathematics, chemistry, physics and human physiology is followed by engineering courses that provide an understanding of the technology of Air Force operations. In addition to the core and majors courses, the academic divisions and departments administer the enrichment program and the graduate programs.

Descriptions of all academic course offerings are included in the catalog appendix.

Academic Core Courses

Academic core courses are concentrated mainly in the cadet's first four semesters, although some of the more technical core courses are generally taken during second and first class years. Most fourth and third class cadets take primarily core courses. Some of these courses are part of two and four course series; others are single courses offered either fall or spring semester. In order to balance fall and spring enrollments in the single courses, various standard core sequences are employed. The standard sequence required of most cadets with no advanced standing, such as transfer or validation credit, is shown in the adjoining column. Cadets with advanced standing will take some third and second class courses ahead of this schedule.

FOURTH CLASS YEAR

Chem 101	Chem 102
English 111	English 112
For Lang 101	For Lang 102
Math 111 (2 CU)	Math 112 (2 CU)
Geog 120	Life Sci 210

THIRD CLASS YEAR

Econ 211	Econ 212
History 201	History 202
Pol Sci 211	Pol Sci 212
Math 211	Math 212
Physics 211	Physics 212
Mech 120	Comp Sci 200
Core Option/ Math 210	Option

SECOND CLASS YEAR

Aero 331	Aero 332
El Eng 333	El Engr 334
Beh Sci 301	Beh Sci 302
Law 210 — Philos 210	History 300/ Pol Sci 412
Option	Option
Option	Option
Option	Option

FIRST CLASS YEAR

English 430/450	English 406/ Philos 440
Astro 332	Law 400
Option	Option
Option	Option
Option	Option
Option	Option
Option	Option

Academic Majors

Each cadet voluntarily selects an academic major from offerings within the fields of science and engineering or social sciences and humanities. The following majors and minor, described in detail in the catalog appendix are offered:

MAJORS

Sciences and Engineering

- Aeronautical Engineering
- Astronautical Engineering
- Basic Sciences
- Behavioral Sciences
- Chemistry
- Civil Engineering
- Computer Science
- Electrical Engineering
- Engineering Mechanics
- Engineering Sciences
- General Engineering
- Life Sciences
- Mathematics
- Physics

Social Sciences and Humanities

- Economics
- General Studies
- Geography
- History
- Humanities
- International Affairs
- Management

MINOR

- Atmospheric Sciences (with Basic Sciences major or Physics major)

Faculty advisers explain to cadets the purposes and requirements of all majors. A cadet may consult with an advisor in any subject area and request assistance in choosing a major suited to his aptitudes and interests. He must make a selection before registering for the fall semester of his second class year. Most cadets, especially those who select science and engineering majors, will choose earlier. At the time he chooses a major, a cadet is assigned an advisor who assists him in planning his course program for future semesters. Once a cadet chooses his major he begins to take courses required for the major along with the remaining core courses.

The Enrichment Program

Through the enrichment program, cadets may be placed in courses according to their individual ability, preparation and achievement. Cadets are encouraged to participate in this program in any or all of the following ways:

Transfer Credit

Credit may be awarded for any college course satisfactorily completed which is equivalent to a course in the Academy curriculum. This allows cadets to substitute other courses for those omitted through transfer credit.

Validation

Special competence may have been gained through "honors" courses in high school, through College Board advanced placement courses or other experience that will enable cadets to complete validation examinations to satisfy the requirements for comparable Academy courses. The cadet may choose a substitute elective for a course satisfactorily validated.

Acceleration

Cadets who have special preparation or above average ability may be placed in accelerated courses which complete the requirements for a two-course sequence in one semester. Such courses are currently offered in chemistry.

Substitution

Advanced course versions are offered as substitutes for some of the prescribed courses. They allow a cadet to concentrate on a subject in greater depth or to satisfy requirements for a particular major.

Overload

Cadets who maintain a 2.60 grade point average may enroll in one course beyond the normal semester requirement. Cadets who maintain a 3.25 grade point average may enroll in two courses beyond the normal semester requirement. This allows the student to have a wider latitude in his course selection.

Honors Sections

Many departments offer honors sections in core courses to selected cadets who volunteer. Course material is studied in greater depth than in the regular sections. Special notation is made on the transcripts of cadets who participate in honors sections.

Audit

First and second class cadets who maintain a 2.60 grade point average may audit one course beyond the normal semester requirement. However, they may not take an overload course in addition to an audit course. Cadets who maintain a 3.25 grade point average may audit one course and overload another course. Cadets auditing courses are not required to take examinations in these courses. Audited courses will not appear on transcripts.

Because of federal statutes the enrichment program does not allow a cadet to graduate in less than four years. The program, on the other hand, does encourage a cadet to participate in cooperative graduate programs, take additional courses in his major field of interest, or take diverse elective courses.

Individual initiative is encouraged through the enrichment program. A course entitled Independent Study, consisting of research work by the cadet on a topic of his own choosing, is offered to upperclassmen by each academic department. Term papers and laboratory experiments provide other opportunities for cadets to engage in their own research.

Every effort is made to keep the content of courses up to date and abreast of current developments. To cover contemporary topics or provide special courses requested by cadets, each academic department may offer a course entitled Special Topics. The content of these courses may change from semester to semester and may cover a wide range of topics. The following are a few of the Special Topics offered during the 1972 academic year:

Environmental Science
Problems and Issues in Population Geography
Introduction to Optimization
The Military Mind
Abnormal Psychology
Fantasy and Science Fiction
The Ecology of Man
Origins of the Cold War
The Philosophy of the Counter-Culture
Physiology and Medicine

Cooperative Graduate Programs

The academic program includes graduate level courses which may be applied toward a master's degree. Under cooperative arrangements between the Academy and certain civilian universities, selected cadets may earn master's degrees from these universities in less than one year after their graduation from the Academy. Graduate programs available are:

Science and Engineering

Aeronautical Engineering
Astronautical Engineering
Behavioral Sciences
Chemistry
Civil Engineering
Computer Science
Electrical Engineering
Engineering Mechanics
Mathematics
Physics

Social Sciences and Humanities

Economics
Management
Geography
History
International Affairs

Cadets selected to attend civilian universities must complete the requirements of a prerequisite undergraduate major and the equivalent of one-half year of graduate level course work during their second and first class years at the Academy. Cadets who perform in an outstanding manner in their major will be considered for participation in these programs.*

**The Air Force Academy is now reviewing its graduate course offerings. Although graduate courses will be retained as part of the curriculum, Cooperative Graduate Programs with civilian universities may not be offered effective with the Class of 1976.*

Scholarships and Fellowships

Cadets are permitted to compete with students from other universities for scholarships and fellowships. Winners of awards study for advanced degrees at universities in the United States and overseas. Among the major awards won by cadets are: Rhodes Scholarships, Guggenheim Fellowships, National Science Foundation Fellowships, Fulbright Scholarships, Atomic Energy Commission Fellowships, and East-West Center Institute Scholarships.

Accreditation

The Air Force Academy is a fully accredited institution of higher learning. The standard Bachelor of Science degree is accredited by the North Central Association of Colleges and Secondary Schools. The Engineers' Council for Professional Development, composed of representatives of the major professional engineering societies, has granted accreditation to the majors in Aeronautical Engineering, Civil Engineering, Electrical Engineering, Engineering Mechanics and Engineering Sciences. The Major in Chemistry fulfills the recommendations of the Committee on Professional Training of the American Chemical Society. Cadets who complete the requirements for one of these majors will earn a specified degree: for example, Bachelor of Science in Chemistry. Although a cadet may earn more than one major, he is awarded only one degree.

The Faculty

Academic courses of study are taught by members of an all-military faculty who are qualified to educate cadets for professional Air Force careers. The faculty is composed primarily of Air Force officers. A few officers from the United States Army, Navy, and Marine Corps, and from the military forces of allied nations serve in a liaison capacity.

Faculty members are required to earn master's degrees in their fields and many of them obtain doctorates. A number of colleges and universities in the United States, as well as some foreign institutions of higher education, are represented in the backgrounds of the Academy faculty.

Twenty-one permanent professor positions and the Dean of the Faculty have been established by law. The permanent professors usually serve as department heads. The other academic ranks are tenure associate professor (on extended tour of duty), associate professor, assistant professor and instructor.

Members of the Academy faculty have a responsibility beyond that of teaching their particular courses. They have an obligation to help furnish a continuing motivation for cadets to devote a career to the service of their country. They attempt to accomplish this goal through precept and example as career officers and qualified faculty members. In addition to maintaining close contact with the cadets in the classrooms and as course directors, faculty members serve as sponsors for their extracurricular activities.

Faculty members perform other functions such as participating in local and national meetings of educational and professional societies. Many of them have made contributions to the literature of their disciplines and to progress in their fields through research projects. During the summer, faculty members often serve other installations of the Air Force as consultants.

Personnel serving on the Academy faculty are listed in the appendix according to the faculty organization to which they are assigned.

Instructional Methods

Faculty members may employ the entire range of teaching techniques including lectures, discussions, demonstrations, tutorials and seminars. The small size of most Academy classes, usually 15 to 20 cadets, has made the discussion approach practical and popular. The classroom atmosphere is relaxed with free communication between the instructor and cadets. Extra instruction is provided for cadets who need assistance to improve their understanding of a subject.

Academy prepared readings, notebooks, and laboratory guides as well as commercially published materials are used by the academic departments. Daily assignments, supplementary reading suggestions, and discussion questions are included in most of the materials.

Classroom teaching aids supplement assigned course materials in all departments. The most modern techniques and equipment are available to all instructors. Among these are mock-ups and various graphic materials manufactured at the Academy, an extensive library of films and slides, and the facilities of closed circuit television. The television system reaches every teaching area in the academic complex.

Academic departments use the TV medium primarily as a supplement to live instruction in the classroom. Academic skills courses in reading improvement and typing, noncredit requirements of all fourth class cadets, are taught mainly by televised presentations.

All departments sponsor guest lecturers to supplement classroom instruction. Noted guests from throughout the United States and several foreign countries have made presentations to the cadets to highlight various aspects of their education.

Classrooms and Laboratories

Most of the academic classrooms were designed to accommodate small class sections and to encourage discussions between students and instructors. The Academy recognized the need for some larger classrooms, and with the expansion of Academy facilities to accommodate a larger Cadet Wing, eight 76-man classrooms were constructed in the addition to Fairchild Hall. These classrooms are in the shape of elongated horseshoes and tiered to provide maximum student-instructor contact.

The Academy is well equipped with laboratories to supplement science and engineering classes. One of the most outstanding facilities is the Aeronauties Laboratory, housed in a separate building near Fairchild Hall. It is equipped with a subsonic wind tunnel, a supersonic wind tunnel, two shock tubes, and statically mounted jet and rocket engines. The Department of Aeronautics cosponsors, in conjunction with the Seiler Research Laboratory, the operation of a 17-inch diameter low density shock tube which is the largest device of its kind in the world. The device is used in studying shock induced phenomena, high speed and high altitude instrumentation and certain astrogeophysical phenomena.

The Instrumentation Laboratory, in conjunction with NASA, is involved in studying the human cardiovascular system. Special instrumentation and techniques are developed to be used in measuring cardiovascular and circulatory parameters in the environment of both atmospheric and space flight.

A new Radio Frequency Systems Laboratory is primarily concerned with instruction and research in radio systems and electromagnetic phenomena. The laboratory is equipped for experiments in guided electromagnetic waves, plane waves and radio communications. An antenna range on the laboratory roof is used for testing and developing various types of antennas.

The Education and Research Computer Center Laboratory houses a large digital computer facility supporting remote and batch processing of research and course programs in numerous assembly and higher level programming languages. This laboratory supports every academic discipline and is used by nearly one-half of the Cadet Wing as well as several hundred faculty members conducting research.

The Academy has two Foreign Language Laboratories with accommodations for 49 men each. The student sits in a sound proof cubicle and responds to the instructor's statements on a tape recorder. By playing back the tapes, the student is able to critique his progress in the language.

The Academy Planetarium is utilized for cadet instruction in the descriptive astronomy course and two navigation courses. The planetarium is also used for educational demonstrations to school groups and the general public. The projector enables the instructor to simulate a multitude of realistic sky effects on the 50-foot dome. Movement of planets, comets, meteor showers, constellations, sunrise and sunset can be duplicated for past, present or future time.

Instructional Technology

The most effective methods of instructional technology are utilized to support the educational mission of the Academy. The Directorate of Instructional Technology provides visual materials and training devices for the instructional departments, fulfills briefing requirements of the faculty and staff, and creates designs for information and education programs of the Academy. The entire spectrum of visual presentation is utilized including graphic layouts, art, typography, still and motion pictures, three-dimensional aids, displays and exhibits.

The directorate manages support resources and operates the closed-circuit television system. Included among the support resources are a library of films, slides and pictorial materials as well as equipment items such as projectors and tape recorders. The television system is equipped to televise up to twelve simultaneous programs to any area in the academic building. Academy instructors can prepare live or videotaped programs using options of multiple production methods.

Instructional technology personnel conduct noncredit courses for cadets in academic skills and basic typing.

Counseling and Scheduling

Administration of the curriculum is the responsibility of the Directorate of Counseling and Scheduling.

The scheduling division prepares the academic calendar, conducts registration, designs the course offering timetable, produces cadet academic schedules, assigns classrooms, and schedules graded reviews and examinations.

The records processing division monitors the academic grading systems, initiates registration changes, and processes all other computer data related to academic administration.

The counseling division includes four counselors who serve as secretaries of class committees that make recommendations to the Academy Board concerning action to be taken on cadets deficient in grades. The counselors also provide guidance to faculty advisors and squadron faculty officers in administration of academic majors programs and they counsel individual cadets on grade deficiencies and major selection.

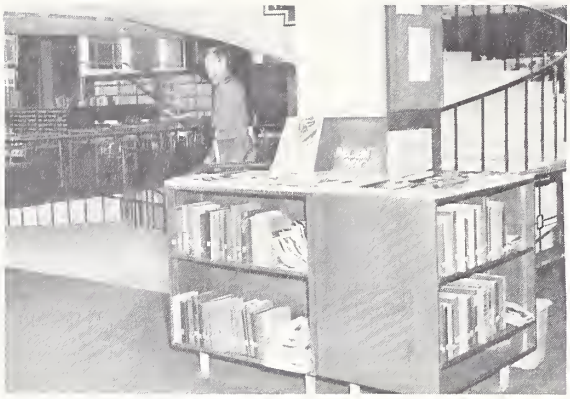
The curriculum officer coordinates and publishes changes to the curriculum including verification of graduation and majors requirements and course descriptions listed in the catalog.

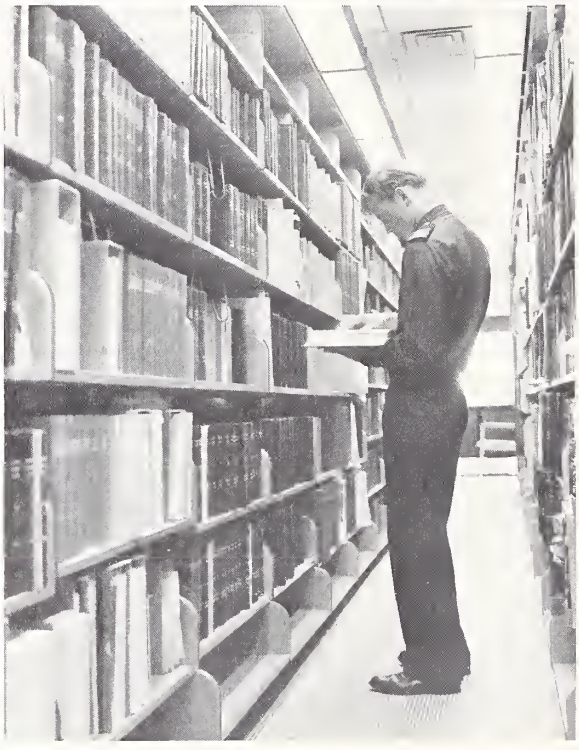
SEILER RESEARCH LABORATORY

The Frank J. Seiler Research Laboratory is one of three basic research laboratories operated by the United States Air Force. It is named in memory of the late Colonel Frank J. Seiler, an Air Force research pioneer. The mission of the laboratory is to conduct research in chemistry, aerospace mechanics, and applied mathematics. It also provides a means for fostering, encouraging, and supporting faculty and cadet related research and disseminating the results to other Air Force agencies and the scientific community. A resident staff of 20 research scientists works closely with faculty members and cadets on Air Force projects of mutual interest. A low-density shock tube, an inertial guidance laboratory and facilities for chemical synthesis and analyses are among the research equipment available for use by the laboratory staff, faculty, and cadets.

The Seiler Research Laboratory is assigned to the Air Force Systems Command, (AFSC). AFSC in turn sponsors Air Force Academy research programs. The laboratory coordinates the AFSC Summer Laboratory Program for faculty and cadets.

Equipment and offices of the laboratory are located in the academic building of the Academy. The lab contains some of the latest computer and data processing equipment. It is utilized by cadets in computer programming courses and by Seiler lab scientists in the solution of a wide spectrum of research problems.





AIR FORCE ACADEMY LIBRARY

The mission of the Academy Library is to support the academic, research, and recreational programs of the Academy. The library also houses material which supports all the operating agencies at the Academy. The book collection contains more than 300,000 volumes with extensive collections in the curricular areas of the academic program, along with special historical and research collections in the fields of military and aviation history and aeronautics and astronautics.

The Colonel Richard Gimbel Aeronautical Library is an outstanding collection recently acquired for permanent use by the Academy Library. It contains over 10,000 books and prints which chronicle man's aspirations and attempts to fly, dating from Babylonian days to the first moon landing. The collection was an avid hobby of Air Force Colonel Gimbel, beginning in World War II in England and continuing until his death in Germany in May 1970.

The library receives more than 100 newspapers, including at least one daily paper from every state, and has current subscriptions and backfiles of over 2,000 periodicals. The library's reference collection, in addition to covering standard reference works in major subject areas, also includes strong bibliographic collections for identification of research resources that are not in the collections of the Academy Library. A scientific and technical report literature collection of over 100,000 titles is maintained on microfiche to support Academy and tenant research organizational requirements.

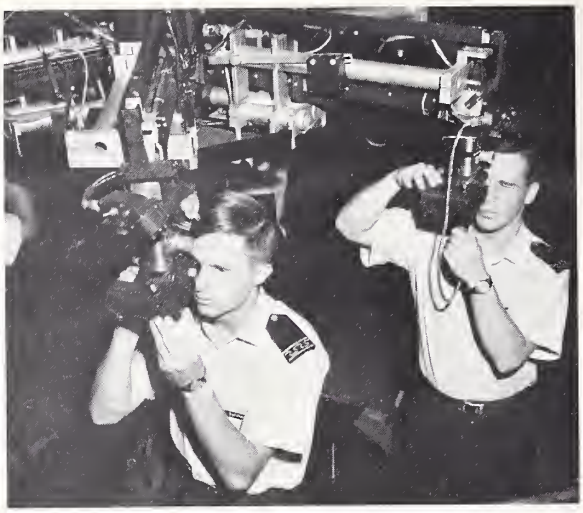
The present library building, first occupied in 1959, is located at the north end of Fairchild Hall, the academic building. The collections are all housed in open stack areas to give patrons better access to the materials. Seating for 1,100 readers is provided throughout the library. In addition to the normal reference and circulation areas, the library includes special current periodical and newspaper reading rooms, rooms for microfilm and maps, a reserve book reading room, music listening rooms for individual and group listening, and the special collections room which houses archival materials as well as special material of historical significance regarding the growth and development of the Air Force.

The library is a selective depository for U.S. Government Publications, and maintains collections of official records of the United Nations and other international agency documents. The audio collections include over 3,000 records and tapes covering music, poetry, plays, speeches, and oral history materials.

The Academy has four branch libraries to serve specialized needs: the Community Library, equivalent to an Air Force base library; the Law Library, used by cadets in their study of law as well as by the Staff Judge Advocate in the practice of law for military personnel; and a Medical Library and a Patients' Library located in the Academy Hospital. There are 52 field libraries of reference collections located in the academic departments and staff agencies throughout the Academy.

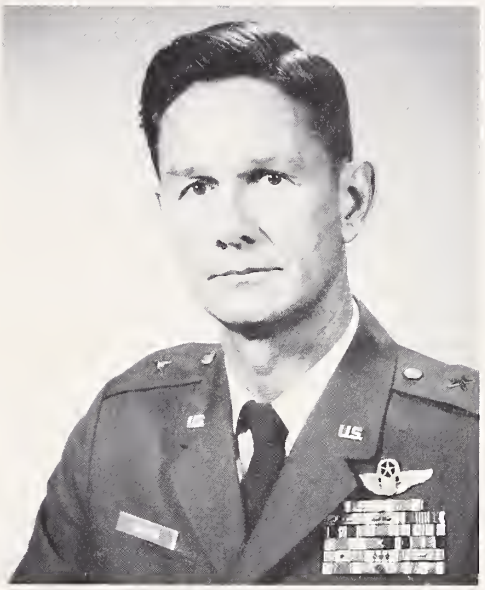
An excellent staff of experienced and well-trained professional librarians is an essential feature of the operation of the library. Professional reference librarians are on duty to assist patrons whenever the library is open. All new cadets are given an orientation covering the library's facilities, services and collections available for their use. Instruction is offered in some subject areas regarding special reference resources in those fields.

Publications by the library staff include periodic listings of current acquisitions and special bibliographies in many subject areas. A library handbook is given each new cadet for his guidance in making effective use of the library's resources. Materials not available in the various collections to meet cadet and faculty needs are normally obtained on interlibrary loan, using the location facilities of the Rocky Mountain Center for Bibliographic Research in Denver and other regional and national union catalogs.




THE PROBLEM SOLVING PROCESS
GROUP
REACTION


U.S. AIR FORCE



Brig. Gen. Walter T. Galligan

Commandant of Cadets

B.S., United States Military Academy;
M.S., United States Air Force Institute of Technology

CADET LEADERSHIP AND MILITARY TRAINING PROGRAM

THE COMMANDANT OF CADETS administers the leadership and military training program which includes command of the Cadet Wing, instruction in military and airmanship courses, application of the Honor Code, and supervision of cadet life activities. Under his supervision are the following functions:

The Deputy Commandant for the Cadet Wing

is responsible for command and organization of the Cadet Wing and for developing moral character and qualities of leadership in each cadet.

The Deputy Commandant for Military Instruction

provides cadets with experience in leadership and the military knowledge needed by an Air Force officer.

The Director of Cadet Operations and Plans

coordinates and develops plans and schedules for cadet activities.

The Director of Logistic Support

executes logistical programs and support activities of the Cadet Wing.

The Director of Cadet Personnel and Administration

is responsible for cadet personnel and administration and for supervision of organized cadet activities.

The Executive for Honor and Ethics

serves as advisor to the Cadet Honor Committee and the Cadet Ethics Committee.

The Chief of Cadet Safety

administers the cadet safety program.

LEADERSHIP AND MILITARY INSTRUCTION

Cadet Wing Leadership Training

Training in command and staff functions within the Cadet Wing affords opportunities for cadets to practice leadership techniques and to develop traits of character and discipline through responsibility. Military officers, who are designated as Air Officers Commanding (AOCs) under the Deputy Commandant, supervise the organization and activities of the Cadet Wing. First class cadets are entrusted with the operation of the Wing. The organization consists of a headquarters with a cadet commander and his staff and subordinate units of groups, squadrons, flights and elements.

All first classmen are cadet officers. The senior officer is the Wing Commander with the rank of cadet colonel. The group and squadron commanders are lieutenant colonels. Cadet captains act as executive officers, administrative officers, flight commanders, academic officers, athletic officers, logistic officers, and training officers. Lieutenants hold various duties within the squadron.

Many second class cadets hold noncommissioned officer rank down through technical sergeant. They serve as element leaders and flight sergeants to gain experience for leadership positions they will hold the following year. A few third class cadets hold the rank of staff sergeant. Positions and ranks are rotated among the cadets during the year to enable a large number of cadets to gain experience in various leadership responsibilities.

Fourth classmen do not hold rank. They begin their leadership practice in the chain of command by strictly being followers. The assumption of leadership training is that the cadet must learn to follow before he can understand and assume the duties of command.

In addition to functioning as a leadership laboratory, the Cadet Wing fosters pride and excellence through competition between the groups and squadrons. The cadet organizations compete in a variety of intramural athletics and in military parades and reviews. Individual inspection of the cadet's appearance and his room also promotes a sense of personal responsibility and esteem.

Cadets may broaden their leadership study through academic courses offered by the Department of Life and Behavioral Sciences and the Department of Economics and Management.

Military Training Courses

Descriptions of military training courses are included in the catalog appendix. A summary of the courses required each year is as follows:

Fourth Class Year

Incoming cadets are required to undergo a strenuous summer training program designed to orient the cadet to Air Force life and give him practical field training. The initial four weeks are spent in the classroom, on the drill field, and in the dormitory to provide a transition from civilian to military life. Upperclass cadets plan and instruct in areas of character development, physical conditioning, and basic military subjects. One of the primary areas of instruction is the Cadet Honor Code. Upperclassmen teach the basic cadets to believe in the Honor Code and to prepare themselves to assume responsibilities imposed by the Code. The final two weeks are devoted to field training. An encampment, located at Jack's Valley within the Academy site, is operated by upperclass cadets to provide them with leadership experiences. Commissioned officers serve only to monitor the program and advise when guidance is necessary. The cadet learns field sanitation, map reading, camouflage and concealment, individual combat techniques and fundamental combat skills. After successfully completing the summer training program, the new cadet is accepted into the Cadet Wing as a fourth classman.

With the beginning of the academic year, the fourth classman enters his first military

training academic course which familiarizes him with the armed forces of the United States and its allies and the forces of Communist powers. Exchange officers assigned to the Academy from the Navy, Army, and Royal Air Force assist Air Force officers in teaching the course.

Third Class Year

The third class summer is divided into three 3-week periods. Cadets receive SERE (survival, escape, resistance, and evasion) training and leave during two of the periods. During the third period they have the option of attending one of the following programs:

- Basic Airborne Training with the U.S. Army at Fort Benning, Georgia
- The Aerospace Orientation Program at Air Training Command bases
- The Soaring Program at the Air Force Academy
- The Air Cruise Navigation Program at the Academy and Combat Crew Training Bases

During the academic year cadets take a course in Command Communications in preparation for instructional duties and leadership roles at the Academy and later as Air Force officers.

Second and First Class Years

Summer programs for the final two years are diversified. Minimum requirements which each cadet must complete are: assuming at least one leadership position in a summer program for fourth and third classmen and participation in a three-week tour of duty with an Air Force unit. In addition cadets may select from several optional duty assignments conducted at Army, Navy, Air Force and civilian installations. Through these optional programs cadets may receive training in various areas including parachuting, soaring, Army recondo tactics, Navy underwater diving/seal training, and lightplane flying. During the second class academic year cadets take a course in USAF combat operations and tactics. The course is supplemented by briefing teams from major commands and by guest speakers with recent combat experience. First class cadets take a course to prepare them for transition from cadet to officer status.

Airmanship Courses

Descriptions of airmanship courses are included in the catalog appendix.

Cadets are introduced to flying through various programs conducted during their four years at the Academy. The indoctrination begins in basic cadet training with orientation flights given by instructors in T-33 jet aircraft. Fourth classmen receive sailplane orientation rides during the academic year. Optional summer programs provide opportunities for cadets to receive instruction in soaring, parachuting, navigation, and basic flying.

Cadets who are physically qualified to fly may volunteer for Air Force pilot training when they enter their first class year. These cadets receive a flying orientation program before graduation. The training is conducted in T-41 single engine aircraft based at Peterson Field near Colorado Springs. An Air Training Command squadron, augmented by Academy officers, teach cadets to fly in the T-41 aircraft. Cadets who complete the program enter pilot training at Air Training Command bases following graduation or completion of a Cooperative Graduate Program.

Cadets may fulfill the requirements for pilot or glider certificates through elective courses offered at the Academy. Instruction is conducted by Air Force pilots in light planes and sailplanes. FAA aeronautical ratings are awarded to cadets who complete the dual instruction, ground school and solo requirements. Elective courses in advanced parachuting are offered as optional training. These courses allow the cadet to progress from emergency to precision parachuting and to achieve jumpmaster and instructor ratings. Elective courses in air navigation provide an introduction to basic navigation concepts and equipment with experience in a flying environment. Cadets who wish to become navigators may enter navigation training following graduation.

THE CADET HONOR CODE

"We will not lie, steal, or cheat,

nor tolerate among us anyone who does."

THESE simple words provide the basis for a personal code of ethics designed to serve the Academy graduate throughout a lifetime of service to his country. Each candidate for appointment must be prepared to accept this Honor Code. A person who cannot accept it should not apply for admission to the Academy.

The Honor Code is specific and clear in what it demands. A cadet is expected to have complete integrity in both word and deed; he avoids quibbling or evasive statements; he does his own work in class. The Code belongs to the cadets. Maintaining its high standards of trustworthiness is the responsibility of each man in the Cadet Wing.

A cadet is expected to report himself for any Honor Code violation. He is also expected to confront any other cadet who he believes has violated the Code or to assure that the incident is reported.

The Honor Code — by stressing that there can be no toleration of lying, cheating, or stealing — emphasizes that honor is a common standard of the Cadet Wing. Those who belong to the Wing must accept this wholeheartedly.

When he embraces this Code, the cadet is not setting an impossible standard for himself. The precepts of the Code are fundamental to the American ethic, but the high standard of adherence demanded by the Cadet Wing does require self control and conscious effort for most new cadets. Later this becomes an ingrained habit and part of the cadet's total ethical code.

The well meaning young man has nothing to fear when he joins the Cadet Wing and accepts the Honor Code. Immediately after entering the Academy, he receives an indoctrination in the cadet way of life during a six-week Basic Cadet Training Program. During that period he receives instruction in the application of the Code from elected Cadet Honor Representatives of the first class. Honor Code instruction is given in an informal atmosphere where the basic cadets are encouraged to ask questions and resolve any problems of interpretation that may arise. The summer training culminates with acceptance of cadets into the Wing as fourth classmen. By this time the new cadet should be prepared to accept and live by the Honor Code. Periodic reviews of the Code and its implications are conducted throughout the year for the benefit of all cadets.

The Honor Code is a tool for self discipline. It is not used as a regulatory device by the Academy administration. Although the Code demands unqualified adherence, it does not place cadets on their honor to obey all orders and regulations or to report all infractions. The Code is a basic moral document covering only substantial matters of morality. By its very wording, it sets its own boundaries.

Cadets regard the Code as a minimum standard. In practice it is the foundation for a larger ethical code which serves the man as a cadet and as a future officer. Academy graduates regard the experience of living under the Honor Code as a cherished possession. To them, the ingrained habits of integrity associated with Academy graduates are a source of pride and a quality which helps them cope with the complex problems that face a career officer in the Air Force. Considering such an objective, the Cadet Honor Code is indeed one of the most important facets of life at the Academy.

CADET LIFE

Summer Schedule

A cadet is indoctrinated into the cadet way of life through a six-week Basic Cadet Training Program immediately after entering the Academy early in July. This program keeps the cadets busy from reveille to taps (6:00 a.m. until 10:00). This fast, disciplined pace is a difficult transition for many of the cadets who have been accustomed to a more relaxed environment. The pressures involved in the program are designed to teach the cadet discipline and self control as well as to test his ability to perform effectively under stress.

Basic cadets are not permitted to entertain guests at the Academy nor leave the base until the completion of their summer training the third week in August. At that time the basic cadets who successfully completed the summer training are accepted into the Cadet Wing. During the Labor Day holiday, the Academy holds a Parents' Weekend. The parents of new fourth classmen are invited to visit their sons and attend special activities including the parade ceremony where they are formally accepted into the Cadet Wing.

During a cadet's ensuing three years at the Academy, his summer schedule is filled with a variety of leadership and military training activities. Academic classes are suspended for the summer term while cadets participate in training programs both at the Academy and at other military installations. Cadets maintain a schedule according to the particular activity in which they are participating.

Fourth Class Training

Training for cadets in their first year at the Academy is divided into three phases. Basic cadet training constitutes Phase I with very rigid disciplinary criteria. Phase II occurs during the fall semester when fourth classmen are still required to maintain rigorous standards of decorum and military posture, but their training progresses into military instruction in a wide range of subjects. Phase III begins early in the spring semester and allows a substantial relaxation from traditional standards of fourth class conduct. It is designed to prepare new cadets for the internal discipline and decorum required of the upper classes.

Academic Year Schedule

During the academic year (late August until June), the cadet's day begins at 6:00 a.m.

with release from quarters. Cadets live in a cadet dormitory, two or three to a room. Each cadet prepares his portion of the room for morning inspection and then has breakfast in the cadet dining hall. Cadets attend classes or have study periods from 7:20 to 11:10. At 11:35 the Cadet Wing forms in front of the dormitory and marches to the dining hall for lunch. Cadets have classes or study periods from 12:35 to 3:25.

Unless the cadet is participating in intercollegiate athletics, he plays on a squadron intramural team two afternoons a week after classes. The other three afternoons during the week he spends in drill, extracurricular activities, or study. He may volunteer for additional academic instruction conducted during the hour prior to dinner.

Dinner is from 6:30 to 7:00. Fourth class cadets are required to be in their rooms after 7:15 p.m., Sunday through Thursday, unless they are studying in the library, which is open every night. The evening study schedule for first, second and third classmen is less strict and varies with each class, although they are generally required to remain at the Academy all week nights. Taps is at 10:45.

Cadet Wing parades and inspections are held on Saturday mornings. Following the noon meal on Saturday, the cadet is free from duty. On Saturday afternoons and evenings and on Sunday afternoons, he may entertain guests in the cadet social center or leave the Academy on a pass if entitled to do so. Weekend passes are granted according to the class schedule.

Leaves

Cadets of the upper three classes are granted approximately three weeks of leave during the summers, either before or following their summer training programs. All cadets have approximately four days of leave for the Thanksgiving holidays, two weeks at Christmas and one week during the spring. Emergency leave may be granted to a cadet whose emergency involves a member of the immediate family. Other requests for special leave are considered on an individual basis.

Privileges

Privileges to leave the Academy are based on a gradual transition from the status of a basic cadet to a second lieutenant. Individual cadets receive greater or lesser numbers of privileges than their basic class quota depending on individual achievement or deficiency.

The two basic privileges are Off-Duty Privileges (ODPs) and Weekend Passes. ODPs may be taken on Saturday from last military duty (usually mid-morning) until taps, or Sunday from after Chapel until the beginning of study time at 7:15 in the evening. First classmen may also take an ODP during the week from last military duty until the start of evening study time. Weekend Passes allow

cadets to remain away from the Academy on Saturday night and generally may be taken from last military duty Saturday morning until 7:15 Sunday evening.

A chart follows which outlines these privileges by class. Privileges are increased for cadets with outstanding performances militarily (Commandant's List) or academically (Dean's List). Even more privileges are given cadets who excel in both military and academic performance (Superintendent's List). Cadet Squadron Commanders and Air Officers Commanding may curtail the privileges of any cadet who is deficient in military or academic areas.

CLASS PRIVILEGES

	Extended Weekend	*Weekend*	*Off-Duty Saturday/Sunday/Holiday*	*Off-Duty Academic Day*
FIRST CLASS	Unlimited	Unlimited	Unlimited	Unlimited
SECOND CLASS	*	5/semester	6/month	Unlimited
THIRD CLASS	None	3/semester	4/month	Unlimited
FOURTH CLASS (fall)	None	1/semester	2/month	None
FOURTH CLASS (spring)	None	1/semester	3/month	None

*AOCs may grant extended weekend privileges to Second Classmen on non-mandatory training Saturdays.

Most cadets go to Denver, Colorado Springs, or Rocky Mountain resorts during privilege periods. First class cadets are permitted to own automobiles during their last year at the Academy. Second, third and fourth classmen are not permitted to own automobiles, but they may rent cars for weekend and off duty privileges if they desire.

Cadet Uniforms

Distinctive cadet uniforms are issued to cadets during the fall of their fourth class year. Basic uniforms during the academic year are the blue class uniform and the blue winter dress. The two parade dress uniforms, worn to parades and ceremonies, are blue jacket and blue trousers for winter and blue jacket and white trousers for summer. The mess dress uniforms, worn to social functions, are black trousers and black dinner jacket for winter and black trousers and white dinner jacket for summer.

Beginning in the spring semester of the fourth class year, cadets may wear civilian clothes when on leave, weekend passes and off base while off duty. Fourth classmen are not permitted to wear civilian clothes in the fall semester except during leave.

Pay and Allowances

The cost of a cadet's attendance at the Air Force Academy is borne entirely by the government. A cadet is prohibited from accepting any other grant or scholarship aid. The cadet receives a monthly allotment which is credited to his account to pay for supplies, clothing, and personal expenses. Quarters, food and medical care are provided. A cadet's pay and allowances are considered sufficient for him to be self-supporting, provided he is economical. The pay is not sufficient for a cadet to cover any debts contracted prior to entrance, to send money home to his parents, or to spend for luxury entertainment or expensive personal items. The money is carefully allocated monthly to cover the cadet's obligation with only a minimum remaining for personal use. With proper economy during his four years at the Academy, a cadet can save enough to purchase the officer uniforms he will need upon graduation.

Insurance

Government sponsored insurance is not provided for cadets. A special commercial insurance plan is available to all cadets on a voluntary basis. The plan provides $20,000 term life insurance and is available for $3.50 per month. This amount is set aside in the cadet budget from the cadet's monthly pay. The policy is free of conditions or restrictions as to occupation, residence, travel or military service. The policy is convertible to any permanent plan of insurance offered by the company at the end of the term period or upon graduation from the Academy. The plan does not prevent a cadet from purchasing insurance from another company.

Included in the cadet budget is a provision for saving an amount equal to approxi-

New Cadet Dormitory

The Academy Hospital

mately two months' pay and allowances for a second lieutenant. This amount, totaling approximately fourteen hundred dollars, is furnished to the cadet upon graduation. Each class establishes a class contingency fund which is operated by a class treasurer. From this fund, a cadet may borrow interest-free money sufficient to cover any emergency situation.

Medical Services

The Air Force Academy has excellent medical facilities located conveniently to the cadets. A cadet dispensary in Fairchild Hall provides out-patient treatment and physical examinations. A cadet dental clinic in the new dormitory provides complete dental care including orthodontia. The clinic, staffed by military dentists, is fully accredited by the American Dental Association.

Serving cadets and Academy military personnel and their dependents is the Academy Hospital located about two miles from the cadet area. This modern facility is fully accredited by the Joint Commission on Accreditation of Hospitals and is a member of the American Hospital Association. Included on the medical staff are specialists in surgery, anesthesiology, orthopedics, eye, ear, nose and throat, internal medicine, urology, pathology, radiology, optometry, psychiatry and flight medicine. Also supporting these physicians are highly qualified military and civilian personnel especially trained in advanced techniques related to the fields of pharmacy, physical therapy, medical laboratory, x-ray, nursing services and hospital administration.

If a cadet must be hospitalized his academic studies may continue through a special liaison program between the hospital and the faculty staff. The cadet, if medically able, receives special assistance by an instructor of a respective subject either at the bedside or in a special classroom available in the hospital ward. The program also includes tapes, books and any other materials needed to maintain academic proficiency.

Cadet Dormitory Facilities

The two cadet dormitories contain facilities for the convenience of all cadets. The largest of these is a cadet store which stocks a variety of clothing and personal items, academic supplies, electronics equipment and rec-

ords, sporting equipment, gift items, and snacks. The dormitories have facilities for distributing and collecting laundry and dry cleaning, a post office and room for wrapping packages, a shoe repair shop, tailor shop, and barber shop. Also included in the dormitories are squadron recreation rooms where the cadets can watch television and play cards and other games during off duty hours, and cadet activities rooms where the cadet hobby clubs, committees and professional groups meet regularly.

Counseling and Advising

Professional counseling is available to all cadets. They are encouraged to seek the help of counseling agencies to further their academic and military development and their spiritual growth. The following are involved in the counseling program:

The Cadet Counseling Service is a full time counseling facility which closely parallels a typical college counseling center. Located in Vandenberg Hall, the counseling service is open on all academic class days and during summer basic cadet training. Objectives of the counseling service are to assist each cadet in gaining maximum personal satisfaction from Academy life, attaining the highest degree of academic success in his course of study, and making a meaningful career choice within the Air Force. Counselors employ both individual interviews and group counseling to assist in the development of proper attitudes and motives for successful performance at the Academy. Counselors also help the cadet to identify his individual aptitudes and abilities so he can best relate these to the Academy program and an Air Force career. A large collection of career materials, tape recorded job descriptions of Academy graduates, and base assignment data is maintained in the Counseling Service reading room.

Air Officers Commanding, under the Commandant of Cadets, are responsible for the overall counseling of cadets in the cadet squadrons. Each Air Officer Commanding (AOC) monitors the progress, motivation and morale of every cadet in his squadron. The AOC is assisted by a squadron faculty officer who advises cadets in academic matters. A staff officer, assigned as an Associate AOC, also assists in counseling and advising cadets.

Cadet Officers play a major role in guiding cadets. They are responsible for most of the military training, athletic participation and academic tutoring within each squadron.

Academic Counseling and Scheduling, under the Dean of Faculty, counsels cadets on course scheduling, majors programs and grade averages.

Faculty Instructors are available to assist cadets in their academic course work. They also help cadets in selecting major fields of study and in developing officer skills.

Cadet Chaplains offer counseling in personal, moral and spiritual matters.

The Mental Health Clinic, under the Command Surgeon, offers a full range of psychiatric services.

Religious Program

The Academy stresses the development of moral values through moral and religious training. A military leader is responsible for upholding those values among the men within his command. A well-balanced religious program for Protestant, Catholic, Jewish and other faith groups enables cadets to develop their potential for religious leadership through participation in religious services and activities of their respective denomination.

Attendance at a church service on Sunday is required for all cadets of the second, third, and fourth classes. They may attend services either in the Cadet Chapel or in a church of their choice in a local community. Sunday church attendance is optional for first classmen.

Other religious activities available to cadets who wish to participate are: daily evening devotions in the chapel, special denominational services and activities, cadet choir membership, Bible classes and religious discussion groups and weekend religious retreats. Many cadets also volunteer to teach Sunday School classes in local religious education programs. There are 17 denominational cadet fellowship organizations, with more than 1,000 cadets participating in activities, on and off base, each month.

Religious services are conducted by Air Force Chaplains who are regularly ordained

clergymen. In addition to the scheduled religious activities, the chaplains offer individual pastoral care and cadet counseling services.

The Cadet Chapel is the center of religious activity for the Cadet Wing. This unique structure has 17 aluminum spires towering 150 feet in a space-age effect. The stained glass columns separating each of the spires color the chapel interior with ever-changing hues. In addition to the Protestant, Catholic and Jewish worship areas, an All-Faith worship room is provided for the use of smaller or otherwise distinctive groups of worshippers.

Social Functions and Entertainment

Arnold Hall, the cadet social center, is a modern recreational complex which contains a variety of facilities for cadets and their guests. The 3,000 seat theater is used for movies, concerts, plays, special events, and appearances by nationally known entertainers. Formal and informal cadet dances, receptions, and other social events are held in the large ballroom and two informal lounges. The center has two snack bars and rooms for bililards, ping pong, shuffleboard, cards, television, and bowling.

Functions are held in Arnold Hall on Friday and Saturday nights, evenings preceding holidays, and on other approved special occasions.

Other facilities available to cadets for recreational and athletic participation at the Academy are: the cadet gymnasium, field house, 18-hole golf course, riding stables, skeet range, automotive hobby shop, and picnic areas. The Lawrence Paul picnic area is located on a small lake within easy walking distance of the cadet area. It has facilities for fishing, picnics and games.

On designated weekends cadets and their guests may utilize the Farish Memorial recreation area, located in the mountains four miles west of the Academy. There they may enjoy fishing, horseback riding, ice skating, boating, barbecues, and overnight accommodations.

Cadet Activities

Many extracurricular activities are availabel to the cadets to develop their professional interests, their creative talents and hobbies, and their leadership potentials. The cadets have originated and continued their own activities on a voluntary participation basis. Organized cadet activities are as follows:

Publications

Contrails Staff — Responsible for publication of the "Contrails" handbook which serves as a record for the traditions and customs of the Cadet Wing as well as an orientation guide to the military service for each class.

Dodo Staff — Responsible for writing an informal cadet paper called "The Dodo."

Polaris Staff — Responsible for publication of the annual Cadet Wing yearbook "Polaris."

Talon Staff — Responsible for publication of the monthly cadet magazine "The Talon."

Mission Support Activities

Bluebards (Dramatic Society) — Theatrical participation in two major dramatic productions each year.

Big Brothers Club — Cadets act as Big Brothers to under-privileged children in Colorado Springs.

Boy Scouts Club — Assists local Boy Scouts in Scouting activities.

Cadet Band — Provides opportunity for cadets to use and develop their musical talents and support for a wide variety of Academy activities.

Cadet Chorale — Participation in group singing with appearances before the Cadet Wing and the public on special occasion.

Cadet Falconers — Cadets interested in falconry train and care for the Academy mascots and conduct demonstrations at athletic events.

CAFPOW — Cadets aid families of Prisoners of War.

Drum and Bugle Corps — Provides musical support for the Cadet Wing and community relations activities.

Interaction — Facilitates communication among cadets of diverse backgrounds, promotes external interaction to further cadet-community relationships, and creates a forum for expression of ideas conducive to social and cultural development.

KAFA — Cadets operate a radio station to provide programs to Academy personnel.

Photography Club — Instruction in photography and photographic assistance to activities of the Cadet Wing.

Representative Competitive Activities

Aviation Club — Provides an opportunity for cadets to obtain FAA ratings through flight instruction.

Bowling Club — Instruction in bowling and participation in competition.

Forensic Association — Participation in intercollegiate forensic competition (debating, extemporaneous speech, oratory, discussion, and interpretive reading).

Handball Club — Non-varsity competition with regional or national teams.

Judo Club — Non-varsity competition with regional or national teams.

Model Engineering Club — Design, construction and operation of aircraft models, slot cars, railroads, and ships.

Rugby Football Club — Non-varsity competition with regional or national teams.

Skeet Club — Non-varsity competition with regional or national teams.

Soaring Club — Non-varsity competition with regional or national teams.

Sport Parachute Club — Non-varsity competition with regional or national teams.

Squash Club — Non-varsity competition with regional or national teams.

Professionally Oriented Activities

American Institute of Aeronautics and Astronautics — Extracurricular engineering projects in the area of aeronautical sciences and rocket development.

Astronomy Club — Provides opportunity for telescopic observation and photography of the moon, planets and stellar objects; comet and meteor tracking, telescope construction and astronomy research.

Biology Club—Research in the biological sciences.

Chemistry Club — Research in chemistry.

Civil Engineering Society — Extracurricular civil engineering projects.

Computer Science Club — Promotes an increased knowledge of the science, design, development, construction, languages, and applications of modern computing machinery.

Economics and Management Club — Economics discussion group with guest speakers.

Far Eastern Studies Group Club — Cadets further their interest in the history and culture of the Far East through discussions, lectures, and field trips.

Fine Arts — Provides cadets with the opportunity to learn and participate in the fine arts.

Forum — Forum discussion with guest speakers and participation in intercollegiate student conferences.

French Club — Cadets further their interest in the history and culture of the French-speaking people through discussions, lectures, and field trips.

German Club — Cadets further their interest in the history and culture of the German-speaking people through discussions, lectures, and field trips.

Geography Club — Cadets further their interest in geography through research and field trips.

History Club — Research in history including field trips in the local area.

Institute of Electrical and Electronic Engineers — Extracurricular engineering projects in the area of electrical engineering.

Mathematics Club — Research in mathematics.

Mechanics Club — Research in mechanics.

Navigation Club — Provides additional research and practical experience in navigation.

Physics Club — Research in physics.

Professional Studies Group — Fosters professionalism and career motivation through movies and lectures by distinguished military and civilian leaders, cadet squadron airpower rooms, field trips to local military installations, a professional library for research, and a publication, "Aerospace Newsletter."

Psychology Club — Cadets attend lectures and demonstrations in the field of psychology.

Russian Club — Cadets further their interest in the history and culture of the Soviet area through discussions, lectures, and field trips.

Spanish Club — Cadets further their interest in the history and culture of the Spanish-speaking people through discussions, lectures, and field trips.

Recreational Activities

Amateur Radio Club — Furthers amateur radio interest and knowledge of military radio communications.

Art Club — Provides cadets the opportunity to learn and participate in the fine arts.

Autosports Club — Stresses auto driving safety and participates in local gymkhanas.

Bowmen Club — Instruction in archery and participation in competition.

Bridge Club — Instruction in bridge and participation in local tournaments.

Fishing Club — Fishing trips in the local area.

Hunting Club — Hunting trips in the local area.

Karate Club — Develops skills in the art of karate and provides competition with clubs in the local area.

Mountaineering Club — Mountain climbing activities.

Saddle Club — Provides facilities and opportunities for horseback riding.

Scuba Club — Instruction and participation in scuba diving.

Ski Club — Instruction in skiing and trips to ski areas in the Rocky Mountain region.

Volleyball Club — Instruction in volleyball and participation in competition.

Weightlifting Club — Instruction in weightlifting and participation in competition.

Water Skiing Club — Instruction and participation in water skiing and boating.

Committees and Councils

The following committees and councils are designated to represent the interests of the Cadet Wing:

Automobile Committee — Representatives of the first and second class are elected to obtain and provide the first class information about the purchase of automobiles, loan arrangements, and limits.

Class Councils — Class representatives study special problems, as directed by the Commandant of Cadets or the Cadet Wing Commander, and prepare supporting reports.

Class Ring Committee — Representatives of the second class select the ring crest and assist the class in selection and purchase of the class ring. The ring is awarded during June Week of the second class year.

Ethics Committee — Expands the cadet's awareness of a need for application of professional ethics, improves personal and group standards, fosters a strong sense of duty and extends the high ideals of the Honor Code.

Fourth Class Training Committee — Second classmen from each cadet squadron develop a training program for the fourth class.

Heritage Committee — Representatives of the second class develop ideas for improving the environment in which cadets live, study and work to create interest in the Air Force and Academy Heritage.

Honor Committee — Instructs and indoctrinates cadets in the Cadet Honor Code. Rules on cases of possible honor violations.

Public Relations Committee — Promotes a closer relationship between the local communities and the Air Force Academy through the Cadet Speaker Program.

Wing Allied Arts Committee — Helps select the entertainment and cultural programs presented to the Cadet Wing.

Wing Dance Committee — Representatives from each squadron plan dances for their class and the Cadet Wing.

Wing Entertainment Committee — Cadet Wing representatives advise the Allied Arts Advisory Board of stage performances desired by the Wing.

Wing Rally Committee — Representatives from each squadron plan pep rallies and halftime events at football games and other competitive sports.

The Cadet Wing Mascot

The falcon is the mascot of the Cadet Wing. The Class of 1959, the Academy's first class of cadets, selected the falcon mascot and named it "Mach I," the term indicating the speed of sound. The falcon was chosen because its strength, alertness, aggressiveness, and poise in flight are symbolic of the mission of the United States Air Force.

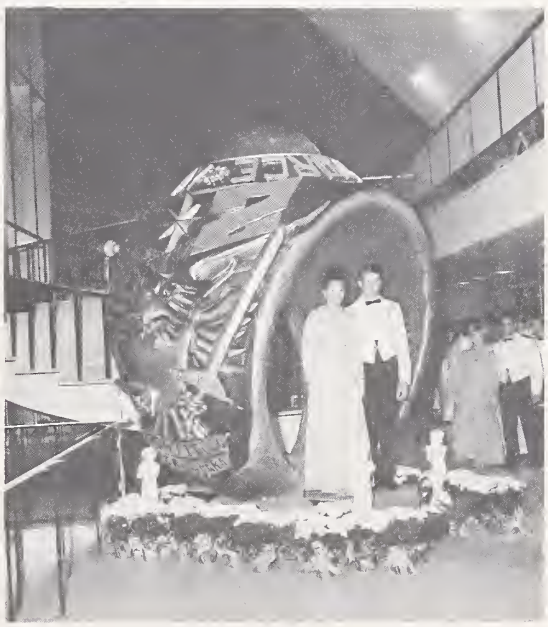
Several falcons are housed in mews north of the academic area of the Academy. The birds are trained and cared for by the Cadet Wing Falconers. These cadets train the falcons to fly in pursuit of a lure in the tradition of the ancient sport of falconry. They conduct demonstations of the falcons' flying ability at halftime activities at football games and other events.

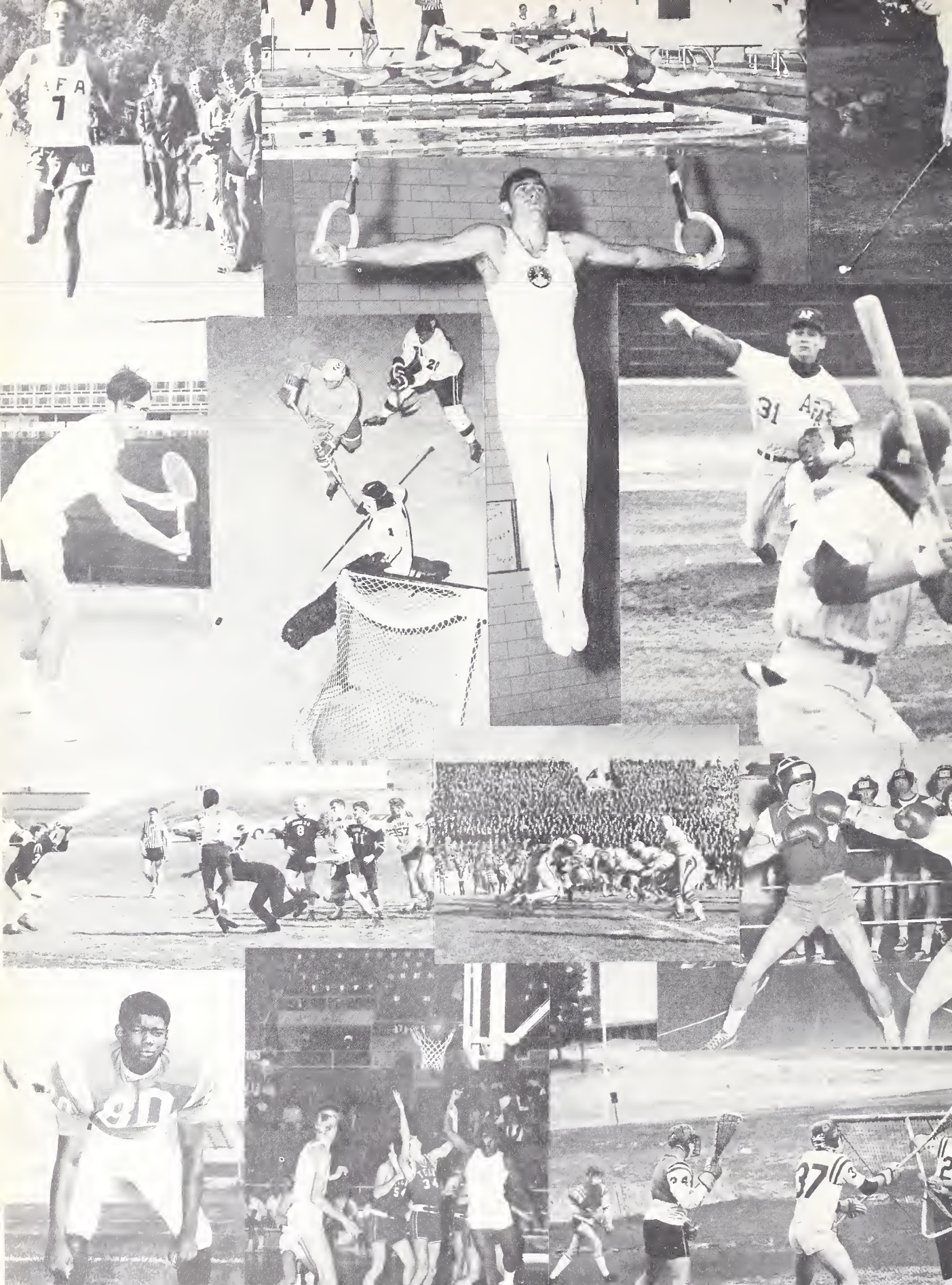
Cadet Awards

A number of cadet awards have been established by organizations and prominent citizens to provide: (1) additional incentive to Academy cadets for better achievement in scholarship, leadership and military training, athletics, and related cadet activities, and (2) public recognition and material reward for achievement. Presented to cadets during June Week are 38 scholastic honors, 13 military awards, 28 athletic awards, and 7 organizational awards. Organizational trophies are presented to the most outstanding cadet squadrons in the following areas: academic achievement, military proficiency, intercollegiate athletics, intramural athletics, and parades and drill. Trophies are presented also to the most outstanding cadet group and squadron for achievement in all areas of unit endeavor.

June Week Activities

During the week prior to graduation of a cadet class, the Academy holds June Week activities honoring the graduates with parades, awards, and social events. June Week is climaxed by graduation ceremonies featuring a distinguished guest speaker, followed by the presentations of diplomas and commissions to the graduates. Parents and friends of the graduating cadets are encouraged to visit and take part in the June Week activities.





Col. Francis E. Merritt

Director of Athletics

B.S., United States Military Academy;
M.A., George Washington University

CADET ATHLETIC PROGRAM

THE DIRECTOR OF ATHLETICS administers the programs of physical education, intramural athletics, and intercollegiate athletics. Under his supervision are two departments:

The Department of Physical Education

supervises physical education instruction and intramural athletics. Physical education covers a broad area of activities such as combatives, aquatics, body development and carry-over skills. Intramural athletics include diversified competitive sports for the entire Cadet Wing.

The Department of Intercollegiate Athletics

provides opportunities for specialized team participation in a broad national schedule with colleges, universities and other service academies. Sixteen intercollegiate sports are available to the cadets.

PHYSICAL EDUCATION INSTRUCTION

Physical Education Courses

Descriptions of physical education courses are included in the catalog appendix. A general summary of the instruction required for each year is as follows:

Fourth Class Year

The entering class undergoes a strenuous basic summer training program designed to develop the cadet's strength, endurance, agility and coordination. Included are conditioning exercises, competitive sports, the obstacle course, inter-squadron field day, and athletic squad screening or recreational activities. A physical fitness test and a swimming test are given to each cadet. During the academic year each fourth classman receives instruction in boxing, gymnastics, swimming, wrestling, and one carry-over skill (either golf, tennis, handball, or squash). Cadets who do not meet the Academy standards in swimming or physical fitness will participate in a remedial program in lieu of a carry-over skill.

Third Class Year

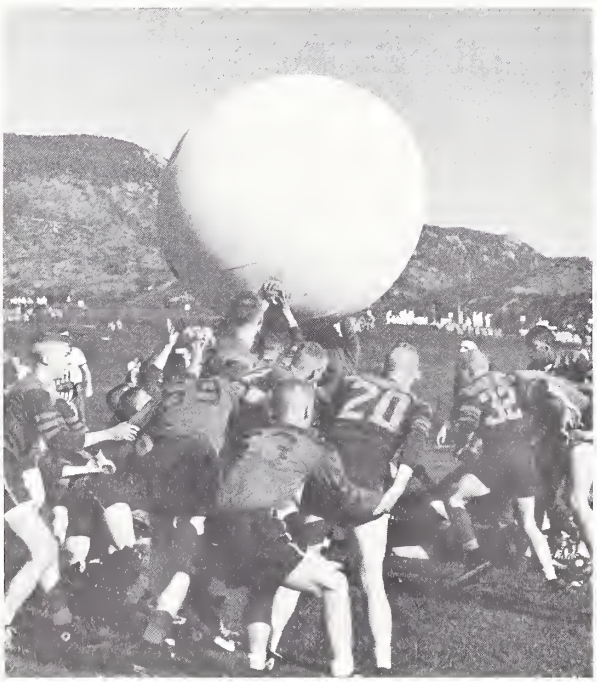
Body development is also emphasized during the third class year through instruction in judo and swimming, including survival and lifesaving. Each cadet receives instruction in two more of the four carry-over skills.

Second Class Year

Leadership development is emphasized in the second class year. Through an instructor training course cadets develop the leadership skills necessary to administer the basic cadet summer training program. In addition, each cadet takes the remaining carry-over skill and receives instruction in unarmed combat and volleyball.

First Class Year

The development of leadership traits is continued in the first class year. A physical fitness methods course introduces the cadet to various programs and techniques of developing



and maintaining physical fitness. The goal is to instill principles of fitness that will carry over for the individual as well as assist him in learning how to supervise Air Force personnel in physical fitness programs. In addition, the cadet takes advanced unarmed combat, badminton, and advanced elective activities.

Intramural Program

Intramural athletics are part of the prescribed physical education program. Intramural participation provides the cadet with broad experience in both team and individual sports. Each cadet who is not engaged in an intercollegiate sport is required to compete in intramural athletics. Each squadron in the Cadet Wing is represented by a team in every sport conducted during the fall, winter and spring seasons. Cadets administer the program under the supervision of physical education instructors. The program gives the cadets experience in coaching teams, officiating contests, and administering athletic programs. The schedule of intramural athletics is as follows:

Fall — football, lacrosse, flickerball, and tennis
Winter — boxing, wrestling, water polo, handball, volleyball, and squash
Spring — rugby, basketball, swimming, cross-country, soccer, and Cadet Wing open boxing championships

INTERCOLLEGIATE ATHLETICS

Intercollegiate athletics provide a source of competition for a large number of cadets to compete in individual or team sports against colleges and universities. Those individuals and Academy teams who qualify and have been recognized for their outstanding achievements are provided the opportunity to compete in the National Collegiate Athletic Association tournaments, post-season bowl games, Pan American games and the Olympics. Their participation in such prestigious events reflects the competitive spirit, leadership and sacrifice desired in future military officers.

Sixteen intercollegate sports are available to cadets:

Fall — football, cross-country, soccer, water polo
Winter — basketball, fencing, gymnastics, swimming, wrestling, ice hockey, indoor track
Spring — baseball, golf, tennis, track, lacrosse

The Academy's varsity teams are known as the Falcons. The teams compete with leading colleges and universities from all parts of the nation. The following 1972 football schedule is an example of the intersectional competition scheduled in all sports:

Home Games

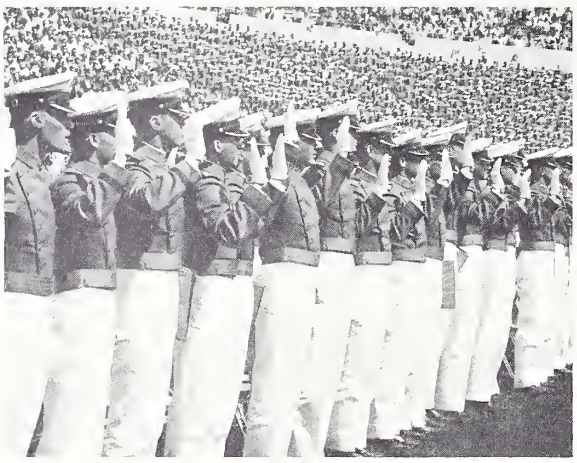
16 Sep — Wyoming
23 Sep — Pittsburgh
30 Sep — Davidson
21 Oct — Navy
11 Nov — Notre Dame
18 Nov — Colorado

Away Games

7 Oct — Colorado State (Ft. Collins)
14 Oct — Boston College (Chestnut Hill)
28 Oct — Arizona State (Tempe)
4 Nov — Army (West Point)

All home games are played in Falcon Stadium located on the site of the Air Force Academy. The Air Force Academy Foundation, an organization of national civic leaders, raised funds to construct the stadium which has 40,800 permanent seats, and with the addition of temporary bleachers the seating capacity can be increased to over 50,000.

Other competitive sports are conducted in the Cadet Gymnasium, Field House, and on surrounding athletic courts and fields. The Field House contains facilities for athletic practice during inclement weather, a basketball game facility, an indoor competitive track facility, and an ice hockey area which can also be used for skating and indoor tennis. Intercollegiate athletics are financed primarily by the Air Force Academy Athletic Association, a self supporting and non-profit organization. The Athletic Association provides experienced coaching staffs and athletic equipment and maintains a central office at the Air Force Academy to handle the administrative details of intercollegiate athletics.



CAREER INFORMATION

Officer Rank

A cadet who successfully completes the Academy curriculum will graduate with a commission as a second lieutenant in the Regular component of the United States Air Force. Under the agreement which he signed upon entering the Academy, the graduate has an obligation to serve as an officer in the Regular Air Force for five years. A majority of Academy graduates remain in the Air Force for a 20 to 30 year career.

Career Counseling

An extensive career information and counseling program is conducted to assist the cadet in making a reasonable choice of his initial assignment and in formulating tentative long-range plans for his career. Outstanding officers from major Air Force organizations, representing the broad range of Air Force skills, meet with cadets in panel sessions to discuss their career opportunities and challenges, flying and technical training, graduate education, and personal aspects of service life. At his request, individual counseling is provided for the cadet by his squadron Air Officer Commanding, the Cadet Counseling Service, and other professional sources among the Academy faculty and staff. The career discussions are particularly emphasized during the cadet's first class year so that he will have factual, current information concerning the Regular Air Force which he will soon enter as a professional officer.

Career Assignments

Academy graduates are given freedom of choice for initial assignment consistent with Air Force requirements and individual physical and academic qualifications.

The Air Force offers a wide choice of career areas. Included in these areas are flying and operations, missiles, scientific and development engineering, electronics and maintenance engineering, civil engineering, transportation, communications, logistics, procurement, financial, statistical, personnel resources management, administrative, cartography, information, education and training, intelligence, and professional fields.

Flying Training

A cadet who is medically qualified may volunteer to enter Air Force pilot training following graduation from the Academy. A T-41 flying indoctrination program is given at the Academy for all cadets who plan to take pilot training. Pilot training includes approximately

one year of flight instruction at an Air Training Command base. The graduate subsequently will receive specialized training either in fighter, bomber or troop carrier aircraft.

The greatest percentage of Academy graduates initially pursue a flying career. The graduate may broaden his career horizons through qualification in pilot or navigator skills. Holding an aeronautical rating will assure the graduate that he may qualify for the highest type of staff and command responsibilities which require a flying background.

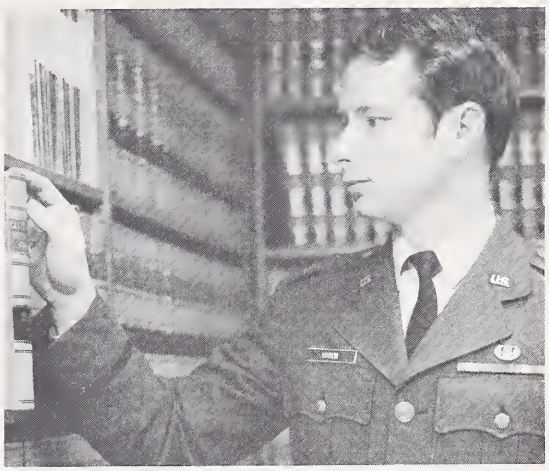
After completing flying training, a graduate can expect to be assigned as a pilot or navigator in a combat operational unit or mission support unit for a minimum of five years. As Air Force requirements permit, the flying trained graduate may then assume duties in another career area. Later in his career the graduate ordinarily will alternate between jobs relating to his flying specialty and those pertaining to another career area. However, the mission of the Air Force is to fly, and the flying trained graduate must anticipate that a significant portion of his Air Force career will be in assigned duties related to flying.

Nonflying Training

Graduates who are not medically qualified or do not desire flying training will enter a nonflying career area. Each graduate will be permitted to list three career areas in order of his preference. Assignment to a career area will be determined as much as possible by the graduate's order of preference. If there is an Air Force technical school in the career area to which a graduate is assigned, he will complete the school before entering the career field.

Medical or Law School

A small percentage of Academy graduates in each class are selected to attend civilian medical schools and law schools. Currently, up to three percent of each graduating class is permitted to enroll in medical school under sponsorship of the Air Force Institute of Technology, and one percent of each graduating class is permitted to attend law school on an excess leave basis. Cadets compete for the available appointments on the basis of their academic performance in pre-medical and pre-law subjects at the Academy, as well as their leadership and military training performance. Those few who are successful in obtaining medical or law school assignments incur a service commitment that is longer than the obligation of other graduates. The officer who attends medical school incurs a commitment of three additional months for each month or fraction of month sponsored in medical school. The officer who attends law school in an excess leave status will accrue an additional commitment of six months for each school year.



Graduate Scholarships and Fellowships

Academy cadets may compete for a number of distinguished graduate scholarships and fellowships. Included are the Rhodes Scholarships for advanced study at Oxford University, National Science Foundation Fellowships, and similar selected national competitive scholarships. Academy graduates who receive advanced education through one of these awards may request flying training after completion of their graduate programs.

AFIT Graduate Education

The Academy graduate who qualifies for advanced education may request a graduate

school assignment. Graduate programs are administered through the Air Force Institute of Techonology (AFIT) at affiliated civilian colleges and universities and also at the Resident School of Engineering at Wright-Patterson Air Force Base, Ohio. The AFIT program enables outstanding graduates to earn master's degrees in a variety of fields.

The Academy has made arrangements to offer cooperative graduate programs in certain subject areas in conjunction with selected colleges and universities. A cadet who demonstrates outstanding aptitude in his major field may be offered the opportunity to participate in one of these programs. He will complete certain graduate prerequisites at the Academy, and after graduation he will finish his master's degree requirements by the following spring at the civilian institution selected for his major.

Academy graduates who complete a cooperative graduate program may enter flying training following the school assignment if physically qualified. Other AFIT graduates usually are not given the opportunity to enter flying training after the completion of more lengthy graduate programs. These officers normally will be assigned within the Air Force to positions utilizing their educational specialties.

Career Benefits

Advancement in the Air Force is somewhat similar to advancement in a civilian occupation. It depends upon length of service, qualifications, and performance. The pay scale is established by Congressional law. The officer is paid according to his rank and his length of service within the rank. An Academy graduate will ordinarily spend 18 months in the rank of second lieutenant before being promoted to first lieutenant. He will receive one periodic pay increase at the end of two years' service. He will ordinarily serve two years as a first lieutenant before promotion to captain.

As the officer progresses in rank, his advancement will be based increasingly upon his personal merit and initiative. The Air Force is a vastly technological and far-reaching organization, yet one that recognizes the value of the individual. The Air Force puts a high premium on leaders with vision, dedication and ability. It offers a stimulating challenge and an interesting future in a wide spectrum of fields to Academy graduates who employ their leadership talents.

Each Academy graduate usually will be assigned during his career to one or more of the armed forces schools for advanced professional studies. These include the Air Force schools at Maxwell Air Force Base, Alabama (Squadron Officers School, Command and Staff College, and Air War College) and the Department of Defense schools (Armed Forces Staff College, Industrial College of the Armed Forces, and National War College).

Graduates will have additional opportunities for advanced education. Career officers in the ranks of lieutenant through lieutenant colonel are eligible to apply for further education through AFIT at civilian colleges and universities. Selected officers attend on a full-time basis, receive pay and allowances, have their tuition and fixed fees paid, and receive some reimbursement for books and thesis expenses.

The Academy graduate who becomes a pilot or navigator will receive flight pay in addition to his base pay. Base pay and flight pay are taxed by the federal government. All officers receive a tax-free allowance for subsistence, and when not occupying government housing, an allowance for living quarters.

During his career the Academy graduate can expect to have duty assignments both in the United States and overseas. He may take his wife and children overseas unless being assigned to a remote area where living facilities are not available for families. Each time he moves the officer will obtain reimbursement for transportation costs, an extra allowance for the incidental expenses of moving, and free shipment of household goods. On an average, the Air Force officer will move to a new assignment every three to five years.

Additional benefits which the officer receives are: medical and hospital expenses for the entire family; commissary and base exchange privileges; officers club privileges; FHA

mortgage loan insurance; group life insurance; 30 days' paid vacation annually. Monthly compensation is granted to dependents of deceased Air Force personnel who die in the line of duty while in the service.

One of the most attractive benefits is the military retirement plan. The government provides for retirement at no expense to the officer. He may retire at 20 years of service at 50% of base pay. Benefits increase proportionately to 75% of base pay at a maximum of 30 years of service. Officers contribute to Social Security and receive those benefits in addition to their retirement.

A regular officer in the armed services has excellent security prospects with stable employment, pay and benefits. The Academy graduate automatically receives a Regular commission. Approximately half the officers in the Air Force hold Regular commissions. The remainder are Reserve officers on active duty.

Career Obligations

A career in the United States Air Force entails certain obligations as well as benefits. An officer is expected to serve his country with serious purpose and dedication. He may be assigned to various areas of the world considered vital to the maintenance of national or international security or important to the scientific and technological advancement of mankind. Some of the areas may be underdeveloped or remote where living conditions are below standards to which the officer has been accustomed. Under all conditions the officer will be expected to give his best efforts and provide leadership for the men who serve under his command.

Association of Graduates

An Association of Graduates has been established at the Air Force Academy to maintain contact with the alumni. The purposes of the Association are as follows:

1. To promote interest and devotion to the Air Force Academy, its history, activities, and objectives;
2. To encourage worthy young men to apply for appointment to the Air Force Academy;
3. To foster fellowship among the graduates of the Air Force Academy in particular and among the United States armed forces officer corps in general;
4. To provide for continued professional development of the armed forces officer corps in support of the military profession;
5. To support other activities in the general interest of the Air Force Academy or the membership of the Association of Graduates.

The Association of Graduates maintains an Alumni Secretary within the Command Section of the Academy to create a central point of contact for all alumni matters. The Association is organized as a non-profit body under the management of an elected Board of Directors, with necessary operating funds collected in the form of yearly dues as well as gifts, donations and bequests.

Through the Class of 1971, the Academy has graduated 6,191 cadets since its beginning in 1955. The graduates have been successful in many career fields of the Air Force. A number have distinguished themselves for courage and accomplishment in aerial combat.

Major Brock Strom, Class of 1959, is one of several Air Force Academy graduates who has returned to serve on the faculty or staff. He was the Academy's first All American athlete who played as a tackle on the Falcon football team which ended the season in the Cotton Bowl.

AIR FORCE OFFICER CAREER AREAS

Photos are Air Force Academy graduates performing in their career specialties

Operations
- Pilot
- Navigator-Observer
- Aircraft Control
- Weapons Director
- Missile Operations
- Safety
- Space Systems

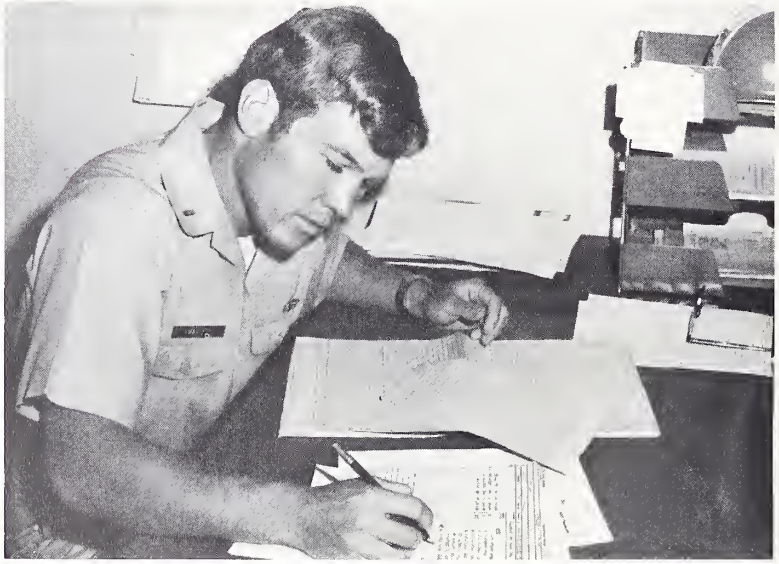
Audio-Visual

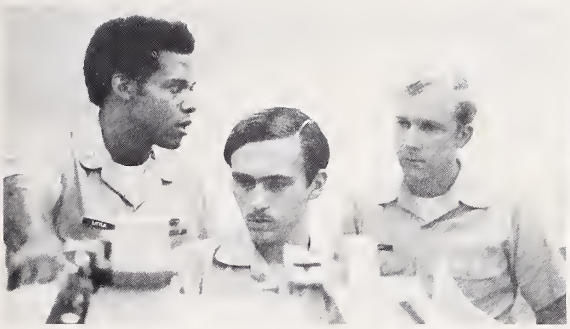
Scientific and Development Engineering
- Weather
- Scientific Specialties
- Research and Development Management
- Development Engineering

Personnel Resources Management
- Administration
- Personnel
- Manpower Management
- Education and Training

Materiel
- Transportation
- Supply Services
- Fuels
- Supply Management
- Procurement Management
- Logistics

Comptroller
- Financial
- Data Automation
- Management Analysis





Security Police,
Special Investigations,
and Counter Intelligence

Electronics and Maintenance Engineering
- Communications-Electronics
- Missile Maintenance
- Avionics
- Aircraft Maintenance
- Munitions

Intelligence

System Program Management

Information

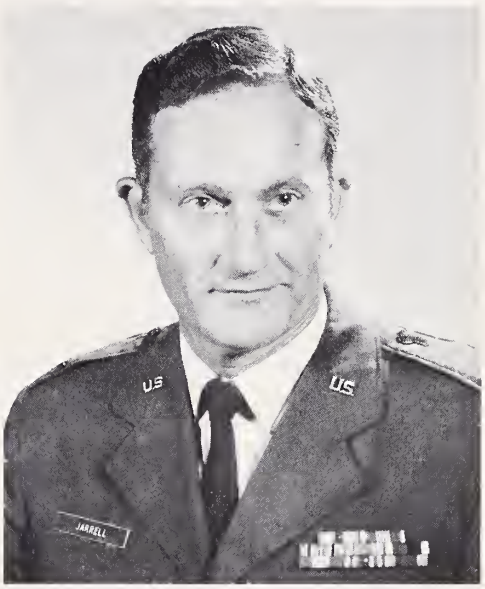
Civil Engineering
- Civil Engineering
- Cartography

Professional
- Legal
- Chaplain
- Medical
- Dental
- Veterinary

AUTHORIZED STRENGTH
of the
Air Force Academy Cadet Wing

Congressional legislation provides for an authorized strength of 4,417 cadets. The authorized appointments at maximum strength for each nominating category are shown below. Cumulative appointments are the total number available, of which approximately one-fourth will enter each year. The other appointments are filled annually.

SOURCE OF NOMINATION	*Authorized Appointments*
	(Cumulative)
100 United States Senators (5 each)	500
435 United States Representatives (5 each)	2,175
Vice President	5
District of Columbia	5
Puerto Rico	6
Canal Zone	1
American Samoa, Guam, Virgin Islands	1
Sons of Deceased or Disabled Veterans	40
Allied Students	
Republic of the Philippines	4
American Republics	20
	(Annual)
Presidential	100
Regular Components	85
Reserve Components	85
Honor Military and Naval Schools, AFROTC and AF Jr. ROTC	20
Qualified Alternates	150
Sons of Medal of Honor Recipients	No Limit



Col. William R. Jarrell, Jr.

Director of Admissions and Registrar

B.S., United States Military Academy;
M.A., George Washington University

CADET ADMISSIONS

THE DIRECTOR OF ADMISSIONS AND REGISTRAR administers this program through five directorates who have the following responsibilities:

The Director of Candidate Advisory Service

administers the Academy Liaison Officer program to provide counseling and information to prospective candidates concerning preparation, application and admission.

The Associate Director of Admissions

receives and processes nominations, determines qualifications of candidates, and selects candidates for appointment subject to approval of the Academy Board.

The Director of Cadet Records

prepares and evaluates reports on the individual cadet and class academic records, maintains records on the total achievement and activities of each cadet and monitors his performance toward meeting degree requirements.

The Director of Evaluation

analyzes and scores cadet examinations and conducts research on candidates, cadets and graduates to evaluate and improve cadet selection, education and training.

The Director of Cadet Counseling

provides professional counseling to cadets on career and academic matters and personal and social problems of adjustment to the Academy environment.

ASSISTANCE TO CANDIDATES

A group of Air Force Reserve officers not on active duty, who are located in communities throughout the United States, act in an official capacity as liaison officers for the Academy. It is the duty of a liaison officer to provide information to young men and their parents concerning admissions procedures and cadet life.

A prospective candidate who desires to talk with the liaison officer nearest to him may be able to obtain his name and address from the guidance counselor at his high school. If it is not available, he may request this information by writing to the Liaison Officer Coordinator in his area. A list of coordinators is included in the catalog appendix. The liaison officers are supervised by the Director of Candidate Advisory Service.

If additional copies of the Academy Catalog are needed by school counselors, copies may be obtained by writing to Candidate Advisory Service, United States Air Force Academy, Colorado 80840.

ELIGIBILITY REQUIREMENTS

To be eligible to apply for a cadet appointment to the Air Force Academy, a young man must meet the following basic requirements:

Age — He must be at least 17 and not have passed his 22nd birthday on 1 July of the year he is to be admitted.

Citizenship — He must be a citizen of the United States. (Allied students are exempt from this requirement.)

Character — He must be responsible, trustworthy, stable and have good moral character.

Marital Status — He must never have been married. Any cadet who marries will be discharged from the Academy.

Medical Standards — He must be in good physical condition.

Scholastic — He must have adequate academic preparation as reflected in his school records.

Potential leadership — He must have demonstrated the potential for leadership through participation in extracurricular activities.

Motivation — He must have a strong desire to become a cadet and pursue a military career.

NOMINATING CATEGORIES AND METHODS

A young man must obtain a nomination in a category authorized by law before he can be considered for a cadet appointment. He should apply for each type of nomination he is eligible to seek in order to increase his chances of being selected. His application should be submitted during the year preceding admission according to the specific dates given under each nominating category. An applicant should furnish complete information for the category in which he is applying. Sample application formats are included in the catalog appendix.

A candidate who failed to receive an appointment in a previous year may become a candidate again by obtaining a new nomination from an appropriate authority, provided he still meets the eligibility requirements.

Congressional

Any resident of one of the 50 states who meets the eligibility requirements may apply for a Congressional nomination. The applicant must submit his request directly to a Member of Congress representing him. United States Senators nominate from their respective states at large. Representatives in Congress nominate from their districts. A young man may apply to both of the United States Senators in his state and to the Representative of his Congressional district. *No political affiliation is necessary to apply for a nomination. Senators and Representatives want to nominate outstanding young men who will have a chance to qualify for an Academy appointment.*

An applicant who desires to enter the Academy in July following graduation from high school is advised to submit his application a year or more in advance. During the spring of his junior year in high school is an appropriate time to apply. Members of Congress submit names of their nominees to the Academy any time between 1 May and 31 January for the class entering the following July. A majority of them will make their selections early in this period. A young man who waits

until the fall or winter months to apply cannot be considered if the Member of Congress has already selected his nominees. A sample letter of application is shown in the appendix.

Most Senators and Representatives require their applicants to take a Civil Service Designation Examination as a measure of their general knowledge of high school English and mathematics. Ordinarily the examination is given in July and November. The Academy does not require or use the results of this examination and is not involved with scheduling or advising prospective candidates on preparation.

Each Senator and Representative is authorized to have a maximum of five cadets attending the Academy at any one time. When a cadet vacancy exists, the Member of Congress may nominate up to ten young men to fill the vacancy. He may choose among three primary methods of nominating candidates to fill a cadet vacancy.

1. *Principal/Alternate Method* — He may nominate one principal candidate and nine alternate candidates listed in order of his prefence. If the principal candidate meets the eligibility criteria, and qualifies on the entrance examinations, and meets all other admission requirements, he will be offered the appointment. If the principal does not meet the minimum requirements, the appointment will be offered to the next designated alternate candidate who is qualified for admission.
2. *Competitive Method* — He may nominate ten candidates and authorize the Air Force Academy to select his best qualified candidate. A composite score will be determined for each candidate to include all entrance examination scores, ratings on previous academic achievement and extracurricular activities, and a rating based primarily upon the recommendations of school principals and teachers. The candidate having the highest qualifying composite score will be offered the appointment.
3. *Principal/Competitive Alternate Method* — He may nominate one principal candidate and nine alternate candidates who will be considered on a competitive basis. The alternate candidate having the highest composite score will be designated the first alternate. The one with the second highest composite score will be the second alternate and so on in descending order.

An applicant who is selected for nomination will receive a notice from his Senator or Representative. The Associate Director of Admissions will send official notification of a nominee's candidacy after the Member of Congress has submitted his nomination to the Academy. A considerable period of time may elapse between the applicant's request for nomination, the selection and notification of nominees by the Member of Congress, and the candidate notification and instructions from the Associate Director of Admissions.

Other Nominating Authorities

The same methods of nominating available to Members of Congress may be used by the following nominating authorities:

1. *Vice President* — The Vice President of the United States nominates candidates from the nation at large.
2. *District of Columbia* — The Mayor of the District of Columbia nominates from among the residents of the District.
3. *Panama Canal Zone* — The Governor of the Panama Canal Zone nominates from among the sons of civilians residing in the Canal Zone and sons of civilian personnel of the United States Government and the Panama Canal Company residing in the Republic of Panama.
4. *Commonwealth of Puerto Rico* — The Resident Commissioner nominates from among all the residents of Puerto Rico, and the Governor nominates natives of Puerto Rico.

Applicants for a Vice Presidential nomination must submit their applications no later than 1 September. A sample application letter is in the appendix.

The other nominating authorities must submit the names of their nominees to the Academy between 1 May and 31 January. Applicants should make their requests early in this period. The Congressional application letter can apply as a guide to these applicants.

Competitive Categories

Appointments in the following competitive categories are awarded to the best qualified

candidates within each group in order of merit.

1. *Presidential*

Vacancies allocated to the President of the United States have been reserved by him for sons of members of the armed services (Air Force, Army, Navy, Marine Corps, and Coast Guard). The son of a Regular or Reserve member of the armed forces is eligible if:

(1) his parent is on active duty (other than for training) and has served continuously on active duty for at least eight years; *or*

(2) his parent was retired with pay or was granted retired or retainer pay (sons of Reservists retired while *not* on active duty status are ineligible); *or*

(3) his parent died after retiring with pay or after being granted retired or retainer pay (sons of deceased Reservists who were retired while *not* on active duty status are ineligible).

By law, a person eligible under the Sons of Deceased or Disabled Veterans category may *not* be a candidate under the Presidential category.

In order for an adopted son to qualify as a Presidential candidate, he must have been legally adopted before his fifteenth birthday or proceedings must have been started before that time. Proof of adoption should be submitted with the application.

To request a nomination in this category, the individual (not his parent) must submit his application to the Associate Director of Admissions between 1 May and 15 December. He should not write directly to the President of the United States. A sample letter is in the appendix.

2. *Sons of Deceased or Disabled Veterans*

The son of a deceased or disabled member of the armed forces is eligible if:

(1) his parent was killed in action or died of wounds or injuries received or diseases contracted in active service, or died from preexisting injury or diseases aggravated by active service; *or*

(2) his parent has a service-connected disability rated at not less than 100 percent resulting from wounds or injuries received or diseases contracted in active service, or resulting from preexisting injury or disease aggravated by active service.

To request a nomination in this category, an individual must submit his application to the Associate Director of Admissions between 1 May and 15 December. A sample letter is in the appendix.

3. *Regular Components and Reserve Components*

Vacancies are available for enlisted members of the Regular Air Force. A candidate must be an active member of the Regular component when appointed to the Academy.

Vacancies are allotted for enlisted members of the Air Force Reserve and the Air National Guard. Candidates must have completed one full year of Reserve service by 1 July of the year admitted to the Academy. A candidate must be an active member of the Reserve component when appointed to the Academy, but his year of required service time does not have to be continuous.

AFR 53-10, "Appointment to the United States Air Force Academy" gives complete directions for applying in the Regular and Reserve categories. A prospective candidate must apply through his unit commander, who will process his application and forward it to the Associate Director of Admissions for a determination of eligibility. The application form (AF Form 1786) should be obtained through normal publications supply channels at the military organization where the individual is assigned. Applications for both Regular and Reserve components must be submitted not later than 31 January for the class entering the following July.

4. *Honor Military and Naval Schools*

Vacancies are authorized for honor graduates of honor military and naval schools. The Departments of Air Force, Army and Navy determine annually which schools will be designated as honor schools. Each school may nominate three candidates from its honor graduates or prospective honor graduates to compete for

the cadet vacancies. Each nomination must contain a certification by the head of the institution that the candidate was an honor graduate or is a prospective honor graduate during a year that the institution was designated an honor school. Nominations must be submitted, on the forms provided by the Academy, to the Associate Director of Admissions by 31 January.

5. *Air Force Reserve Officer Training Corps*

Three students from each college or university AFROTC unit may be nominated to compete for the authorized vacancies. A student should apply to the Professor of Aerospace Studies who must certify that he meets the basic eligibility requirements. The Professor of Aerospace Studies will recommend to the president of the institution the best qualified applicants. The president of the institution will submit the nominations on a form provided by the Academy indicating his concurrence and the satisfactory academic standing of the nominees. The form will be sent to the Associate Director of Admissions by 31 January.

6. *Air Force Junior Reserve Officer Training Corps*

Three students from each high school may be nominated to compete for the authorized vacancies. A student should apply to the Aerospace Education Instructor who must certify that he meets the basic eligibility requirements and by the end of the school year will have successfully completed the prescribed AFJROTC program and be awarded a certificate of completion and a high school diploma. The Aerospace Education Instructor will recommend to the principal of the high school the best qualified applicants. The principal will submit the nominations on a form provided by the Academy indicating his concurrence. The form will be sent to the Associate Director of Admissions by 31 January.

7. *American Samoa, Guam, and the Virgin Islands*

The Governors of American Samoa, Guam, and the Virgin Islands may each nominate four candidates. These twelve candidates will be considered on a competitive basis for one appointment when the vacancy exists. The names of all nominees must be submitted to the Associate Director of Admissions between 1 May and 31 January for the class entering the following July. The sample letter for a Congressional application also will apply to these authorities.

Sons of Medal of Honor Recipients

A son of a Medal of Honor recipient who served in any branch of the armed services may apply for a nomination in this catgory. If an applicant meets the eligibility criteria and qualifies on the entrance examinations, he will be appointed to the Academy. Vacancies are not limited in this category. An applicant must write to the Associate Director of Admissions between 1 May and 31 January, using the sample letter in the appendix as a guide.

Qualified Alternate Candidates

The Air Force Academy Board may recommend qualified alternate candidates from all categories for appointment in the number required to bring the Cadet Wing to its authorized strength. Therefore a young man nominated by a Member of Congress, but not appointed to fill his vacancy, may still be considered on a competitive basis for an appointment if he is qualified. All qualified alternate candidates will be considered and no application by the individual is necessary.

Allied Students

The Air Force Academy may provide instruction to young men from allied countries as follows:

Republic of the Philippines

One student from the Philippines may be admitted to the Academy each year. The President of the Republic of the Philippines will be responsible for selecting nominees to be considered for this appointment.

American Republics

As many as 20 citizens from American Republics may be enrolled at the Academy at

one time. Not more than three persons from any country in the American Republics may be enrolled at the same time.

Nominations must be received by 31 December for the class entering the following July, but they should be submitted as early as possible.

Applicants should write to an appropriate officer of their government, not to the Academy or other United States government offices. An applicant's letter should contain information about his background and should be submitted at least a year prior to admission in July.

Requirements for admission are essentially the same for allied students as for United States cadets. The CEEB or ACT tests and the qualifying medical examination are required for allied students. A nominee who does not speak English as his primary language must take the Test of English as a Foreign Language and the English Comprehension Level Test.

Students selected for the Academy must be able to read, write and speak English proficiently. English language instruction will be provided for them during basic cadet training and the fourth class year. Semester schedules and curricular requirements may be adjusted by the office of the Dean of Faculty to allow for specific language and cultural differences.

Allied students receive the same pay and allowances as United States cadets. However, the allowance for initial travel to the Academy is not limited to mileage for travel within the United States.

If an allied student should be judged unable to profit by the academic courses, become deficient in conduct or aptitude for commissioned service, or commit an offense for which a United States cadet would be dismissed, the Department of the Air Force will be requested to effect his withdrawal from the Academy.

Each student who meets the established academic requirements for allied students will be awarded a Bachelor of Science degree. If a student does not meet the degree requirements, he will be awarded a Certificate of Completion. Allied students are not commissioned in the United States Air Force.

QUALIFYING EXAMINATIONS AND RECORDS

Medical Examination

Effeetive 1 June 1972, the medieal examinations for all serviee academies will be scheduled by the Serviee Aeademies Central Medieal Review Board, at the request of the sponsoring Member of Congress or the appropriate academy. Military examining faeilities will not conduct an examination unless the applieant is seheduled by this board. The applieant will be notified by letter as to the specific date, time, and place of examination. If possible eaeh applicant will be scheduled for the examination at a military medieal facility nearest his home. The applicant should make every effort to meet the scheduled date. If he is unable to be present on that date, he must notify immediately the Service Academies Central Medical Review Board and the medical examining faeility.

The examination scheduled by the medical review board and conduеted at the military medical facility will be honored by all U. S. service academies, and the applicant will not be scheduled for more than one examination if he is applying for more than one academy. Examinations conducted by eivilian physicians or U. S. Armed Forces Examining Stations are not aeeeptable and will not be honored as a service academy medieal examination.

The applieant must meet the following requirements for the medical examination:

1. Letter of scheduling authorization must be retained and presented to the examining facility upon arrival.

2. Contaet lenses, if worn, must be removed a minimum of three weeks prior to the examination date.

3. The applieant must have a pair of sunglasses in his possession at the time of examination. Effeets of eye drops used as part of the examination do not permit safe driving until approximately six hours following the eye examination. An applicant who drives to the examining facility must be prepared to remain at the installation until his eyes have returned to normal.

The report of medical examination will be forwarded to the Service Academies Central Medical Reviеw Board for evaluation and certification. The applicant will be notified of his medieal qualifieation status. Any questions coneerning medical qualification must be referred to the Director, Service Academies Central Medical Review Board and not to the service academy.

Before taking the medieal examination, an applieant is encouraged to review his past and present medical history with the assistance of his parents and family physician. The list of illnesses and injuries which should be reviewed appears in the catalog appendix. The applieant should also see his dentist for a thorough eheckup. All decayed teeth revealed visually or by x-ray should be filled before taking the medical examination.

Medical Qualifications

Approximately 70 percent of the eandidates admitted to the Air Force Academy must possess the medical qualifications to enter Air Force Pilot Training. The remaining 30 percent of the candidates admitted must fulfill the non-pilot medical qualifications. A candidate who does not meet the medical requirements for pilot training but does meet the non-pilot admission standards will be considered for admission if his records indieate outstanding aeademic or leadership aptitudes. The final decision will be made by the Air Force Academy based upon the level of attainment on seleetion criteria. Admission consideration by the Aeademy is automatic and action by the candidate is not required.

Maximum acceptable limits for pilot training and non-pilot training are shown in the catalog appendix. Not all possible disqualifying defeets are listed, but those pertaining to vision, assoeiated eye requirements, hearing, height and weight are shown.

Physical Aptitude Examination

Each Air Force Academy candidate must take a Physical Aptitude Examination (PAE) consisting of exercises designed to measure coordination, strength, endurance, speed and agility. Each candidate enrolled in a secondary school will be requested to take a high school version of the PAE to be administered at his school. A candidate who scores above the 30th centile on the high school exam will be considered qualified on the Academy PAE. A candidate who scores below the 30th centile on the high school exam and who is otherwise qualified will be required to take the Academy PAE at either an Army or an Air Force installation. A candidate who is not in high school will take the PAE at an Army or Air Force installation. The Academy may make an exception to this procedure for a candidate from a previous admissions cycle who qualified on the Academy PAE. A PAE re-examination will not be required for the previous candidate unless he wants to try to improve his prior performance.

A list of Academy PAE items and qualifying performance scores are included in the catalog appendix.

CEEB or ACT Tests

All candidates for admission to the Air Force Academy must take either the College Entrance Examination Board (CEEB) tests or the American College Testing Program (ACT). Candidates winning appointments to the Air Force Academy in previous years have had CEEB verbal aptitude scores ranging from 400 to 800 and math aptitude scores ranging from 480 to 800. Average scores each year have been approximately 580 and 660 respectively. On the ACT test battery, comparable English test scores range from 19 to 36 and math scores from 23 to 36. Few candidates have been successful in competing favorably with scores below those ranges.

If a candidate elects to use the College Entrance Examination Board, he must take the following tests:

Scholastic Aptitude Test

1. Verbal Section
2. Mathematics Section

Achievement Tests

3. English Composition
4. Level I (Standard) Mathematics or Level II (Intensive) Mathematics. (Select one — Level I recommended for candidates without advanced high school mathematics.)
5. A candidate is encouraged, but not required, to take a third achievement test of his choice. It may be used by the Academy for evaluation and placement purposes.

The scholastic aptitude test is designed to measure the student's ability and readiness to undertake studies at the college level. The test measures basic skills and abilities with emphasis on the reasoning faculty rather than on rote memory. The verbal section stresses the ability to read with comprehension, to reason with verbal material, and to perceive word relationships. The mathematical section measures the ability to understand mathematical relationships and to solve problems. The achievement tests are one hour, multiple choice tests dealing with specific areas of knowledge. Each test requires knowledge of important facts in a specific field of study as well as the ability to reason with those facts.

The College Board publishes descriptive booklets entitled *A Description of the College Board Scholastic Aptitude Test* and *A Description of the College Board Achievement Tests.* Most secondary schools have a supply of these booklets. If a candidate is unable to obtain copies at his school, he may write to the nearest College Board office and request that the booklets be sent to him. Candidates should write to the College Entrance Examination Board either at Box 592, Princeton, N.J. 08540, or Box 1025, Berkeley, Calif. 94701. Candidates who live in Montana, Wyoming, Colorado, Arkansas, Texas and states west should write to the California office; others should write the New Jersey office. There is no charge for the booklets. They describe all tests given during the current school year.

It is the candidate's responsibility to register for the CEEB tests. Registration instructions are contained in the *Bulletin of Information, College Board Admissions Tests.* This booklet is available at no cost at most secondary schools. Members of the armed forces may find copies available at base education offices. If a candidate is unable to obtain a copy, he should write to the nearest College Board office and request the booklet.

The fee for each administration of the CEEB tests will be paid by the applicant. The candidate must choose the center where he wishes to take the tests and mail his registration card and test fees to the College Entrance Examination Board. The board will schedule the candidate to take the tests at the center he chooses if the quotas have not been filled, otherwise at another center which may be located in his community or usually not more than 75 miles away.

CEEB tests may be taken in 1972 and 1973 on the dates listed below. Registration must be completed approximately six weeks prior to the test date.

8 July 1972
4 Nov 1972 (SAT only)
2 Dec 1972
13 Jan 1973
3 Mar 1973

Scores on CEEB tests taken prior to 8 July 1972 are also acceptable for admission consideration.

A candidate can take the tests more than once in an effort to improve his previous scores. Each time he registers for the tests, he must request the College Board to send his scores to the Air Force Academy.

A candidate living in a remote area overseas may not be able to take the CEEB tests in his home community. In this case, the candidate should register for the tests at a location nearest to the examining center where he will take his medical and physical aptitude examinations. These examinations will be scheduled to coincide with the CEEB testing dates so that a candidate will be able to complete all tests during one trip.

If a candidate elects to use the American College Testing Program, he must take the entire ACT battery consisting of four tests: English, mathematics, social studies, and natural sciences. The tests are designed to measure the student's ability to perform the kinds of intellectual tasks typically performed by college students. Most of the test items are concerned with how the student can apply what he has learned rather than with specific or detailed subject matter.

The English Usage Test measures the student's understanding and use of basic elements in correct and effective writing, punctuation, capitalization, usage, phraseology, style, and organization.

The Mathematics Usage Test measures the student's mathematical reasoning ability. The test emphasizes the solution of practical quantitative problems that are encountered in many college curricula. It also includes a sampling of mathematical techniques covered in high school courses.

The Social Studies Reading Test is designed to measure the evaluative reasoning and problem solving skills required in social studies. It measures the student's comprehension of reading passages taken from typical social studies materials. It also contains a few items that test his understanding of basic concepts, knowledge of information sources, and knowledge of special study skills needed in college social studies.

The Natural Sciences Reading Test measures the critical reasoning and problem solving skills required in the natural sciences. Emphasis is placed on the formulation and testing of hypotheses and the evaluation of reports of scientific experiments.

It is the candidate's responsibility to register for the ACT tests. Registration instructions are contained in the registration packet which is available at most secondary schools. If a candidate is unable to obtain a packet, he should write to the Registration Department,

American College Testing Program, Box 414, Iowa City, Iowa 52240.

The fee for each administration of the ACT tests will be paid by the applieant. The candidate must choose the center where he wishes to take the tests and mail his registration packet and test fees to the American College Testing Program. The candidate will be scheduled to take the tests at the center he chooses if the quotas have not been filled; otherwise he will be scheduled at another center which may be located in his community or usually not more than 75 miles away.

ACT tests may be taken in 1972 and 1973 on the dates listed below:

Test Dates	*Registration Opens*	*Registration Closes*
14 Oct 72	21 Aug 72	28 Sept. 72
9 Dec 72	2 Oct 72	13 Nov 72
24 Feb 73	27 Nov 72	29 Jan 73
21 Apr 73	13 Feb 73	26 Mar 73

Scores on ACT tests taken prior to 8 July 1972 are also acceptable for admission consideration.

A candidate can take the ACT tests more than once in an effort to improve his previous scores. Each time he registers for the tests, he must request that his scores be sent to the Air Force Academy.

Preparation for Tests

In preparation for the College Entrance Examination Board tests, an applicant is advised to take the Preliminary Scholastic Aptitude Tests (PSAT) during his junior year in high school. The test consists of a verbal section and a mathematics section. An applicant may register for this test through his high school and may arrange to have the results sent to his congressional sponsor if he desires.

The American College Testing Program has no test comparable to the PSAT, however, an applicant will be at no disadvantage if he takes the ACT in his junior year since appropriate adjustments are made in scoring the tests for the educational level of the student at the time of testing. Then if a student's score is extremely low in his junior year, he will have time to re-take the tests during his senior year. ACT recommends re-testing of a candidate only if there is an unusual reason which affected his scores.

EVALUATION AND SELECTION OF CANDIDATES

Selection panels, comprised of senior officers assigned to the Academy, evaluate candidate qualifications. Their evaluations are derived from entrance examination scores, ratings on prior academic and leadership performance, and recommendations contained in documents submitted by school authorities and Academy liaison officers.

The selection panels recommend qualified candidates to fill the available cadet vacancies in each nominating category. The recommendations are presented for approval to the Academy Board, composed of the Superintendent and his key staff officers. The appointment recommendations are subject to final approval of the Secretary of the Air Force.

Candidates who hold principal nominations, as well as certain highly qualified candidates, may be notified of their appointments as soon as they meet all entrance requirements. Notifications will be sent periodically after mid-January. All other candidates selected for appointments will be notified late in April or early in May. Since a few selected candidates may decline their appointment offers, it is possible that some qualified candidates may not be notified of appointments until shortly before the new class enters in July.

REQUIREMENTS OF CADET APPOINTEES

Documentary Requirements

Social Security Number

Each appointee must present his social security number upon reporting for admission. Any candidate who does not have a social security card should apply for one in order to have his number available if he receives an Academy appointment. The application form

may be obtained from the local Post Office or the Socal Security Administration office. Ask for Treasury Department Form SS-5.

Birth Certificate

Every appointee must submit a certificate of birth issued by the State Registrar of Vital Statistics or by the city or county office of birth registrations. The certificate must bear the official seal and the signature of the legal custodian of his birth records. All items on this record *must* be legible. Baptismal or hospital certificates are not acceptable. Birth certificates found to be in error should be corrected through the appropriate office of birth registrations prior to submission.

Name Changes

A candidate must use his name as it appears on his birth certificate on all official records. If he wishes to use a different name, he must provide the Associate Director of Admissions with legal evidence, such as a court order authorizing a name change. Until the appropriate documents are received, his name will be entered in the records as it appears on his birth certificate. Should he receive a cadet appointment, he will be sworn in under his birth certificate name unless acceptable documents have been received to substantiate a name change.

Adopted Son

If a candidate is an adopted son who is claiming eligibility in a nominating category through his adoptive parent, he must submit a copy of the court order of adoption.

Naturalized Citizens

If the candidate received United States citizenship by naturalization, he must submit a statement from a notary public indicating that the notary has seen his certificate of naturalization. This statement must contain all the information included in the format below.

Claiming Citizenship Through Parents

If a candidate was born to United States citizens while they were outside of the United States, he must submit a statement from a notary public indicating that the notary has seen his certificate of citizenship. This requirement applies to the children of U.S. military or civilian personnel who were born overseas. For information on obtaining a certificate of citizenship, a candidate should contact the nearest office of the Immigration and Naturalization Service. The notary statement must contain all the information included in the format below.

Format For Notary Public Statement

Associate Director of Admissions
USAF Academy, Colorado 80840

(date)

I certify that I have examined the certificate of (naturalization) (citizenship) of *(candidate's first, middle and last name)* and the following information was extracted therefrom:

Court Name and Location_____

Certificate Number_____

Date of Certificate_____

Full Name_____

Place of Birth_____

Date of Birth_____

_____

(Signature, Notary Public)

Admission Deposit

Each appointee will be requested to deposit $300 before being admitted to the Academy. This deposit is necessary to help defray the initial costs of uniforms, supplies and other personal expenses. All deposit checks, money orders, bank drafts, etc., should be made payable to The Treasurer of the United States and mailed to the Accounting and Finance Office, USAF Academy, Colorado 80840. In cases of extreme hardship this deposit may be reduced. Requests for waiver should contain full justification. An appointee who is unable to make a full deposit will receive reduced money allowances until his account reaches the level as prescribed.

The $300 deposit is supplemented by a $600 credit at time of admission to the Academy. The $600 is an interest free loan advanced by the government to defray the cost of the uniforms and equipment required during the first year. This loan must be repaid during the time a cadet is in training. The repayment is accomplished by recouping from the cadet the portion of his monthly pay not required for books, clothing, laundry, income tax, and other required items of expense. Recoupment continues until the $600 is repaid.

Cadets who are involuntarily separated from the Academy prior to repayment of the $600 will have all excess pay and allowances applied against the indebtedness. If the indebtedness is not satisfied by such application of funds, the cadets are permitted to turn in enough clothing and equipment of a distinctive military nature to liquidate the remaining balance. Cadets who are voluntarily separated for their own convenience are required to repay in full the amount of such indebtedness.

Travel Expenses

Except for a member of the armed forces who is provided transportation under joint travel regulations, each appointee is normally allowed six cents per mile for travel expenses to the Academy from his home in the United States or point of entry into the country. Travel outside the continental limits of the United States is normally reimbursed at the rate of six cents per mile for land travel and actual cost of travel by commercial ship or air, provided government transportation is not available. Travel allowances will be credited to the individual's account following admission unless he makes a specific request that the money be sent to his parents. If the allowance is credited to his account, he may apply the sum toward his admission deposit.

Service Obligations

Upon admission each cadet will be required to take the following Oath of Allegiance: "I, _____(name), having been appointed an Air Force Cadet in the United States Air Force, do solemnly swear (or affirm) that I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties of the office on which I am about to enter. So Help Me God."

A cadet who enters the Air Force Academy directly from civilian status and takes an oath of allegiance as a cadet assumes a military service obligation of six years.

Each cadet will be required to sign an agreement, with the consent of his parents or guardian if a minor, that he will fulfill these obligations:

1. Complete the Academy course of instruction, unless he is disenrolled from the Academy by competent authority.
2. Accept an appointment and serve as a commissioned officer in a Regular component of one of the armed services for five years.
3. If authorized to resign from the Regular component before the sixth anniversary of his graduation, serve as a commissioned officer in the Reserve component until the sixth anniversary.

4. If disenrolled from the Academy before graduation, he will be subject to the following separation policies which apply to all service academies. Application of these policies will be governed by the Department of Defense requirements for the Active and Reserve components and the national manpower needs of selective service.

Legal Provisions

a. A cadet who enters the Academy directly from civilian status assumes a military service obligation of six years (Title 10, U.S.C. 651).

b. A cadet who enters the Academy from the Regular or Reserve component of any service, upon separation from cadet status, normally will revert to his former status for the completion of any prior service obligation (Title 10, U.S.C. 516). However, completion or partial completion of a prior service obligation by a separated cadet who entered from this status does not necessarily exempt him from transfer to a Reserve component and call to active duty (Title 10, U.S.C. 9348).

c. A cadet who does not fulfill his agreement to complete the course of instruction and accept a commission may be transferred to the Air Force Reserve component in an appropriate enlisted grade and may be ordered to active duty for a period of time which cannot exceed four years (Title 10, U.S.C. 9348b).

General Policy

a. A cadet who is separated and who entered the Academy from the Regular or Reserve component of any service normally will revert to his former status under the appropriate statutory provisions. However, he may be transferred to a Reserve component in an appropriate enlisted grade and may be ordered to active duty under appropriate statutory provisions.

b. A cadet who is separated from the Academy because of physical disability or because of demonstrated unsuitability or unfitness for military service will be discharged in accordance with current regulations of the Air Force.

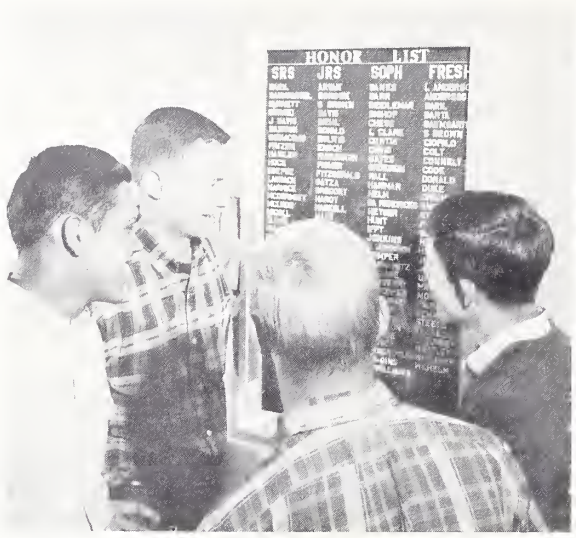
c. A cadet who tenders a resignation will be required to state a specific reason for his action. The Air Force will establish appropriate procedures to determine whether each case comes under the criteria established to determine what constitutes demonstrated unfitness or unsuitability for military service.

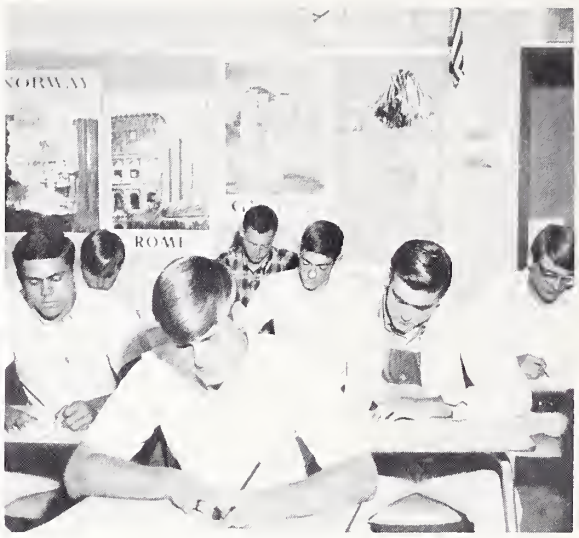
Specific Policy for Cadets Who Were Not in a Regular or Reserve Status Upon Admission to the Service Academy

a. *Fourth and Third Classmen (1st and 2nd years).* Any Fourth or Third Classman who is separated or whose resignation is accepted will be discharged in accordance with current regulations of the Air Force. A resignation tendered by a Fourth or Third Classman will be accepted when found to be in the best interests of the service. In accordance with an agreement between the Department of Defense and the Director, Selective Service System, notification will be made to the appropriate Selective Service Board advising a change in the individual's status in each case where a cadet is separated from the Academy.

b. *Second and First Classmen (3rd and 4th Years).* A Second Classman who is separated prior to the commencement of the Second Class academic year will be discharged in accordance with current regulations of the Air Force. With the commencement of the Second Class academic year, a Second or First Classman who is separated prior to completing the course of instruction, except for physical disability, unfitness or unsuitability, will normally be transferred to the Reserve component in an enlisted status and be ordered to active duty for not less than two years. Where separation occurs as a result of deficiencies, which are not considered *wilfull*, the active duty provision may be waived.

c. *Refusal to Accept Commission.* Any First Classman who completes the course of instruction and declines to accept an appointment as a commissioned officer will be transferred to the appropriate Reserve component in an appropriate enlisted status and ordered to active duty for four years.





CANDIDATE PREPARATION

PREPARATION GUIDE

It is important to start preparing for the Academy well in advance of admission. Academic, leadership and physical preparation may even begin on the junior high school level. In senior high, a young man is definitely advised to follow the program of preparation outlined in this chapter.

A student preparing for the Academy should be diligent in his effort to obtain the proper background. He should learn how to study effectively and budget his time to an advantage, for this is expected of every cadet at the Academy. To be successful, a cadet must give maximum effort to the Academy curriculum of academic studies, military training, and physical education.

High school counselors and Air Force Academy Liaison Officers may provide helpful assistance to individual students with a specific program of preparation.

One of the most important things for a young man to know is *when* to apply for the Academy. If he wants to enter immediately after graduation from high school, as most cadets do, he must apply well in advance. It is advisable to apply for a Congressional nomination during the spring of his junior year. Members of Congress nominate their candidates from May through January for the cadet class entering the following July. Young men who apply early usually stand a better chance of receiving a nomination.

Senators and Representatives are interested in nominating the student who has excelled academically in high school, who has demonstrated his leadership potential through school activities, who is physically fit, who is liked and respected by his associates, and who has a strong desire to pursue a military career.

If a student was not successful in obtaining an appointment to enter in July following his high school graduation, he may try for the Academy class entering the following year. The Academy encourages prospective candidates to attend a preparatory school or a civilian college or university during the intervening year.

Academic Preparation

The CEEB or ACT tests, required for admission to the Academy, measure a candidate's potential for success in the cadet academic

program. For adequate preparation in high school, a young man should definitely take the following subjects and strive for above average grades in his class work:

Mathematics — 4 units

(Should include first year algebra, intermediate algebra, trigonometry, and plane geometry.)

English — 4 units

The following subject areas are recommended as an additional background for the academic program. A prospective candidate should try to take as many courses as possible which embrace these areas in the sciences, social sciences, and humanities.

Sciences

Biology
Chemistry
Physics
General Science
Advanced Mathmatics
Mechanical Drawing

Social Sciences and Humanities

Economics
American Government
History
Geography
Psychology
Foreign Languages
Public Speaking

Typing is recommended in addition to the above courses. Typewriters are available to the cadets for preparing reports.

Each cadet at the Academy is required to take one foreign language, either German, Chinese, Japanese, Spanish, French or Russian. A high school background in one of these languages is helpful. The student who has an opportunity to take a language in high school should select one language and take as many years of instruction in it as possible. Three years of instruction are considered desirable for the best preparation. Either Russian or German is appropriate for cadets who may desire to major in the sciences.

The Academy does not require specific school courses or credits for entrance. A candidate does not have to be a high school graduate to gain admittance. However, one who has not graduated from high school at the time of admission may lack the proper background to accomplish the cadet program of education.

A high school student preparing for the Academy should try to achieve excellent grades. A majority of the cadets have ranked in the top quarter of their graduating classes. A student must rank in the upper forty percent of his class in grade average or he will not qualify for admission to the Academy without further preparation in college or preparatory school. The Academy does not attempt to recommend specific schools for preparation. Any accredited institution of higher education which offers a broad curriculum in the sciences and liberal arts should provide adequate preparation for the Academy.

College credits may be transferred to the Academy if the courses correspond to those in the cadet curriculum and an acceptable grade level has been achieved. Cadets who have successfully completed college level high school courses, or those who have acquired extensive knowledge of a subject without taking a course, may take validation examinations after admission in an effort to obtain credit for comparable Academy prescribed courses. Placement/validation examinations are administered to each new cadet in the following subjects: English, history, geography, chemistry, mathematics, political science, and foreign language.

Cadets who have made high scores on College Board Advanced Placement tests may receive validation credit for comparable Academy courses. Young men preparing for the Academy who have taken advanced placement courses in high school are urged to take the related advanced placement tests. The advanced placement tests are administered in May of each year at College Board examining centers throughout the country. Registration in advance, including payment of fee, is necessary. Information on registration procedures, fees, testing dates, and examining centers is contained in the bulletin, *Advanced Placement Examinations,* available without charge. This bulletin may be obtained by writing to the

College Board Advanced Placement Examinations at one of the following addresses: Box 592, Princeton, N.J. 08540, or Box 1025, Berkeley, Calif. 94701.

A cadet who demonstrates acceptable achievement in a subject through college transfer credit or validation examination will be allowed to complete the comparable Academy course at an accelerated rate or to omit the course and take an appropriate substitute. No matter how many courses a cadet may validate or transfer, he must enter as a fourth classman and spend four years at the Academy.

Students preparing for the Academy should plan to transfer credit or validate courses whenever possible. Cadets who have done so will be able to complete their prescribed courses sooner, thus leaving more time in their schedule to gain depth in a subject area or prepare for post graduate study. Many Academy graduates will have opportunities for advanced study at civilian universities or Air Force technical schools.

Leadership Preparation

All phases of the Academy curriculum are devoted to preparing the cadet for leadership in the Air Force. Active participation in high school extracurricular activities provides valuable experience in preparing for positions of leadership responsibility.

A young man preparing for the Academy should participate in extracurricular activities, both athletic and non-athletic, to demonstrate his leadership potential. The Academy considers a candidate's potential to be greater through distinction in extracurricular activities, such as being elected class president or earning an athletic letter award, rather than participation in a variety of activities without evidence of leadership. The Academy considers the following to be evidence of leadership potential:

1. President or vice president of school classes or student government.
2. Participation and achievement in athletics (football, baseball, basketball, track and others).
3. Meritorious awards in academic or leadership activities (Citizenship Award, Boys State Delegate, Boys Nation).
4. Participation and achievement in public speaking, debate, dramatics, publications or musical activities.
5. Participation and achievement in the Eagle Scouts, Civil Air Patrol, or Reserve Officer Training Corps.

Physical Preparation

All young men who are preparing for the Academy should maintain a high degree of physical fitness through participation in sports and through proper care of health. There is a definite correlation between physical fitness and the ability to succeed in the cadet program of education and leadership training.

A physical aptitude examination is given to each candidate to measure his coordination, strength, endurance and agility. Candidates may prepare for this examination by engaging regularly in vigorous physical activity such as running, exercises and sports.

A cadet's first two months at the Academy are devoted to a strenuous physical program of basic cadet training. Physical exertion is required from morning until night as the cadet goes through physical conditioning and military training. A basic cadet must be conditioned to meet the stringent physical demands that will be placed upon him. It is recommended that a candidate prepare in advance and build up his physical endurance through the following activities:

1. Participate in vigorous athletic team sports such as baseball, basketball or football.
2. Participate in individual sports requiring sustained physical effort such as swimming, tennis, handball or squash. It is advisable for a young man to learn how to swim before he enters the Academy.
3. Perform strenuous conditioning exercises until many repetitions of each exercise can be accomplished without undue physical strain. Push-ups, pull-ups, sit-ups and other exercises are recommended emphasizing development of legs, arm and shoulder strength.
4. Perform sustained distance running in a daily workout program. One mile runs are recommended, with alternate running and walking at first and gradually increasing the amount of running.

PREPARATORY SCHOLARSHIPS

Three non-profit agencies, the Falcon Foundation, the Gertrude Skelly Trust, and the General Henry H. Arnold Educational Fund, provide educational assistance programs to enable deserving young men to better qualify for admission to the Air Force Academy. These agencies have no official connection with the United States Air Force or the Air Force Academy. Neither do they have any connection with the Air Force Academy Foundation which raises funds to provide recreational and cultural facilities for the Academy.

The Falcon Foundation

The Falcon Foundation provides preparatory scholarships annually for highly motivated and qualified young men seeking admission to the Academy and a career in the Air Force. The scholarships are awarded through preparatory schools to deserving young men who need additional academic preparation.

The Foundation makes annual cash grants for these scholarships to specific preparatory schools in various parts of the nation. Application for scholarships and information concerning the schools must be made directly to the Falcon Foundation, Post Office Box 611, Dallas, Texas 75206. Completed applications must be received by the Foundation by 1 May each year.

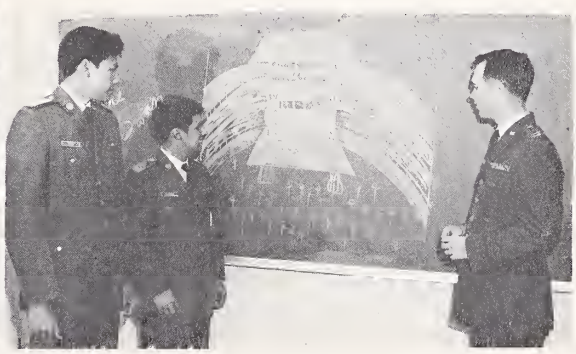
The Gertrude Skelly Trust

The late Gertrude Skelly of Tulsa, Oklahoma, wife of William G. Skelly, founder of the Skelly Oil Company, established this trust fund. It is administered by two Trustees: Mr. Harold C. Stuart, president of KVOO Radio and Television and former Assistant Secretary of the Air Force, and Mr. Russell F. Hunt, Executive Vice Chairman of the Board of Directors of the First National Bank and Trust Company, Tulsa.

Scholarships from this trust fund will be awarded only to sons, adopted sons or step-sons of active, retired, or deceased career members of the armed forces of the United States. A young man should not apply unless his father was or is a career member of the armed forces. Complete information on applications may be obtained by writing to The Gertrude Skelly Trust Fund, Box 1349, Tulsa, Oklahoma 74101.

The General Henry H. Arnold Educational Fund

Sponsored by the Air Force Aid Society, this fund provides educational assistance to sons of Air Force personnel. Assistance is limited to college and preparatory schools beyond the high school level. The applicant may make his own choice of an accredited school. An application blank may be requested from: Director, Air Force Aid Society, National Headquarters, Washington, D.C. 20333. An application blank is not available at Aid Society sections on Air Force installations. The completed application, including qualifications and need for financial assistance, must be returned to the Air Force Aid Society not later than 31 January preceding the fall of the year the applicant plans to enter college or preparatory school.



THE ACADEMY PREPARATORY SCHOOL

An Air Force Academy Preparatory School is conducted for selected members of the Regular and Reserve components of the Air Force and for other eligible military nominees. Its purpose is to provide intensive instruction in English and mathematics to assist students in preparing for the Academy entrance examinations. It also prepares students for the academic, military and physical training programs of the Academy. The school begins in August and continues through May.

A member of any one of the armed services on extended active duty may apply for the Preparatory School through his unit commander. Details of application and eligibility are outlined in a joint Air Force, Navy and Marine Corps regulation entitled "Air Force Academy Preparatory School." (Specific regulation numbers are AFR 53-14, BUPERS INST. 1530.49IC, and MCO 1530.51B.) Applications for the class entering in August must be submitted before 31 May.

To apply for an appointment to the Preparatory School, members of the Army, Navy, and Marine Corps must be on active duty and have received a nomination from a Member of Congress or other authorized nominating authority. Members of the other services are not eligible for nomination to the Academy under the Regular or Reserve categories.

Members of the Air Force Reserve and Air National Guard not on extended active duty but in active Ready Reserve assignments are eligible for nomination under the Reserve component and may apply for the Preparatory School. Applications should reach the Associate Director of Admissions before 31 May. Air National Guardsmen who are selected must then be enlisted in the Air Force Reserve. From Reserve status, candidates will be called to extended active duty to attend the Preparatory School. Those who have not received basic training will be sent to Lackland Air Force Base, Texas, for this purpose.

Academy candidates who were not offered appointments, but whose records indicate that they may improve their chances by additional academic preparation, will be given the opportunity to compete for assignments to the Academy Preparatory School. Candidates eligible to be considered will be notified in late April or early May. If a candidate applies and is selected to attend the school, he must be willing to join the Reserve for a six year commitment.

Selection of students for the Preparatory School is made by the Air Force Academy. Selection is based on the applicant's high school academic record, his extracurricular activities, and the results of mental and medical examinations. *Selection for the Preparatory School,* or *completion of the course, in no way guarantees the student an appointment to the Academy.* The Preparatory School student must follow the same procedure for obtaining a nomination and competing for an appointment as any other member of the Regular or Reserve components.

Active duty airmen who are eliminated from the school or fail to obtain Academy appointments will be reported for reassignment within the Air Force. Reservists who have been called to active duty will be released from duty but will be required to fulfill the remainder of their six year Reserve obligation.

Complete information concerning the Preparatory School is contained in a brochure available upon request from the Director of Candidate Advisory Service, USAF Academy, Colorado 80840.

GUIDE TO APPENDIX

APPENDIX

LIAISON OFFICER COORDINATORS

Liaison Officer Coordinators are Air Force Reserve Officers, not on active duty, who act as admissions counselors for the Air Force Academy. Anyone interested in receiving counseling assistance should write or call the nearest Liaison Officer Coordinator.

Alabama

Lt. Col. Jason N. Kutack
607 N. Hancock
Fairhope, AL 36532
Ph: 205-928-5355

Alaska

Lt. Col. Stanley D. Constantine
Box 207
Douglas, AK 99824
Ph: 907-586-6266

Arizona

Lt. Col. Dean E. Smith
P.O. Box 802
Tempe, AZ 85281
Ph: 602-967-6370

Arkansas

Maj. Kenneth R. Walker
Route 2, Box 43
Russellville, AR 72801
Ph: 501-968-0275

California

Col. Robert S. Lawson
1338 Woodruff Ave.
Los Angeles, CA 90024
Ph: 213-270-3585

Col. Robert L. Dodge
4734 College Ave.
San Diego, CA 92115
Ph: 714-582-7376

Col. Elmo F. Hayden
1014 Olive Ave.
Menlo Park, CA 94025
Ph: 415-324-2300

Col. Robert J. O'Donnell
16871 Park Lane
Huntington Beach, CA 92649
Ph: 714-846-9206

Col. James S. Ritter
3391 Mono Drive
Riverside, CA 92506
Ph. 714-684-3219

Col. Irvin G. Lewis
1023 W. Duarte Rd., Apt. 5
Arcadia, CA 91006
Ph: 213-445-2066

Col. Leonard L.Turoski
3613 Soranno Ave.
Bakersfield, CA 93309
Ph: 805-832-0566

Major Charles S. Anderson
399 Riverview Dr.
Auburn, CA 95603
Ph: 916-885-0343

Maj. Lloyd H. Parry
1762 Alray Dr.
Concord, CA 94520
Ph: 415-682-8364

Colorado

Col. Glenn H. Dorward
6572 E. Dakota Ave.
Denver, CO 80222
Ph: 303-333-0135

Connecticut

Col. Jack S. Cummings, Sr.
23 Prudence Dr.
Stamford, CT 06907
Ph: 203-322-0001

Delaware

Maj. George W. Collins
Box 175
Dagsboro, DE 19939
Ph: 302-732-6022

Florida

Col. Joseph V. Fedale
4908 Quincy St.
Tampa, FL 33611
Ph: 813-832-2801

Col. H. S. Pickering, Jr.
417 N.W. 120th St.
Miami, FL 33168
Ph: 305-688-4793

Maj. Thomas D. Kemp III
8161 Southside Blvd.
Jacksonville, FL 32216
Ph: 904-249-3620

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Lt. Col. Floyd W. McRae, Jr.
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Atlanta, GA 30308
Ph: 404-355-0414

Hawaii

Col. Rex D. Johnson
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Kaunakakai, HI 96748
Ph: 808-553-5102

Idaho

Maj. John Relk
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Nampa, ID 83651
Ph: 208-466-3840

Illinois

Maj. Hollis A. Hatfield
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Wheaton, IL 60187
Ph: 312-668-7757

Capt. Richard E. Carver
603 E. War Memorial Dr.
Peoria, IL 61614
Ph: 309-691-3430

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Col. Earl K. Sample
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Bristol, IN 46507
Ph: 219-848-4055

Col. John F. Wild, III
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Indianapolis, IN 46205
Ph: 317-283-6200

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Col. Paul H. Hillman
RFD 2
Essex, IA 51638
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Kansas

Lt. Col. Howard W. Dallman
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Prairie Village, KS 66208
Ph: 913-262-4983

Maj. Jack L. Lively
Box 483
Coffeyville, KS 67337
Ph: 316-251-9250

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Maj. Evangelos S. Levas
119 S. Limestone St.
Lexington, KY 40507
Ph: 606-266-8343

Maj. Billy B. Morgan
Route 8, Box 17A
Benton, KY 42025
Ph: 502-527-8541

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Monroe, LA 71201
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Lt. Col. Stanley Shaw
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Ph: 504-348-3802

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Maj. Norman E. Merrow
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Kennebunkport, ME 04046
Ph: 207-967-3732

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Maj. George H. Rowell
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Ph: 313-531-1192

Col. Kermit D. McAlvey
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Minnesota

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Ph. 314-434-4452

Col. John A. Riffle
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Goffstown, NH 03045
Ph: 603-497-2058

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Col. Anthony DeFranco
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Newark, NJ 07106
Ph: 201-374-6523

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El Paso, TX 79925
Ph: 915-772-1915

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Col. Chester K. Friedland
9 E. Washington St.
Bath, NY 14810
Ph: 607-776-2260

Col. Milton Seaman
122 E. 42nd St.
New York, NY 10017
Ph: 212-697-2116

Col. Amos B. Sharretts
P.O. Box 143
Garden City, NY 11530
Ph: 516-747-2218

Col. Raymond J. Wienk
343 North St.
Arcade, NY 14009
Ph: 716-496-6099 (Buffalo)

Maj. Eugene G. Barker
44 Byrne Ave.
Glens Falls, NY 12801
Ph: 518-793-1485

Maj. Morton R. Schoenberg
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New York, NY 10028
Ph: 212-427-3480

North Carolina

Lt. Col. Vaughn O. Moore, Jr.
2107 Sparre Dr.
Kinston, NC 28501
Ph: 919-523-3827

Lt. Col. Herman J. Preseren
1908 Faculty Dr.
Winston Salem, NC 27106
Ph: 919-722-0221

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Fargo, ND 58102
Ph: 701-235-9076

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Ph: 419-531-6244

Col. Albert E. Prudence
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Cleveland, OH 44111
Ph: 216-671-4575

Lt. Col. Rowland Hopple
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Maj. John Young
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1404 Juniper St.
Johnstown, PA 15905
Ph: 814-255-4219

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Lebanon, PA 17042
Ph: 717-272-4132

Col. Gerald H. Farrell
572 Rector St.
Philadelphia, PA 19128
Ph: 215-482-7880

Col. John F. Stephens
106 Lilac Lane
Scranton, PA 18505
Ph: 717-347-7963

Maj. Andrew E. Sentgeorge
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Lt. Col. William E. Crosby
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Capt. Mark S. Dittrich
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Col. Worth G. Kirkman
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Williamsburg, VA 23185
Ph: 703-229-5549

Washington, D.C.

Col. James M. Tibbs
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Maj. William F. Nielsen
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Lt. Col. Wayne W. Wilson
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San Juan, PR 00936
Ph: 809-782-2502

Canal Zone

Maj. John A. Banasick
P.O. Box 1602
Balboa, Canal Zone
Ph: 522-695

Germany

Maj. John C. Mahan
Box 436
APO NY 09090

PHYSICAL APTITUDE EXAMINATION ITEMS

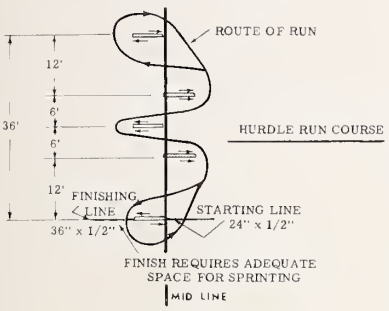
Candidates are advised to prepare for this exam by engaging in vigorous physical activities and by practicing on specific test items. The items included in this examination are listed below and the grade is based on total score. The five test items should be completed within a one hour and 15 minute time limit.

1. PULL-UPS

1. *Pull-ups* — From a momentary straight-arm hang position on a horizontal bar, palms away from face, elevate the body until the chin is above the bar. Return to the straight-arm hang position and repeat the movement as many times as possible.

2. *Standing Broad Jump* — From a standing position behind a take-off line, jump forward as far as possible. Swinging arms, bending knees, and raising heels off the floor is allowed but do not take a preliminary step or hop.

2. STANDING BROAD JUMP



3. AGILITY RUN

3. *Agility Run* — Run for time on a gymnasium floor, three round trips through a maze of five hurdles within a distance of 36 feet. The distance between the first to second and fourth to fifth hurdles is twelve feet. The distance between hurdles two, three, and four is six feet. The route of the maze run is to weave in and around each hurdle in both directions.

4. 300 *Yard Shuttle Run* — Run six round trips between two turning blocks, 25 yards apart, in the shortest time possible.

4. SHUTTLE RUN

PHYSICAL APTITUDE EXAMINATION SCORES

Total Candidate Population for Entrance July 1971

Event	*High-Scores*	*Mean Scores*	*Low Scores*
Pullups	20	7	0
Standing Broad Jump	9′6″	7′6″	5′3″
Hurdle Run	31 sec	36.6 sec	47.5 sec
300 Yard Shuttle	51 sec	60 sec	74.5 sec

Above are the Air Force Academy Physical Aptitude Examination ranges of scores for the testing cycle ending in July 1971. The examination score is a total adjusted score for all four events. A high or low score on any one item does not insure success or failure on the overall examination, but low scores on all events would likely result in disqualification.

MEDICAL HISTORY

Before taking the Air Force Academy qualifying medical examination, an Academy applicant should review his past and present medical history with the assistance of his parents and family physician. He should also have a thorough dental examination. All decayed teeth revealed visually or by x-ray should be filled before taking the qualifying medical examination.

The following list of medical conditions should be reviewed by the applicant and his parents. If he has been treated for them in the past or is now being treated, a complete report from the attending physician must be obtained and presented to the medical examining facility when reporting for a qualifying medical examination.

Rheumatic fever
Swollen or painful joints
Bone, joint or other deformity
Painful or "trick" shoulder or elbow
Paralysis or lameness
Worn a brace or back support
"Trick" or locked knee
Arthritis or rheumatism
Frequent or severe headache
Dizziness or fainting spells
Ear, nose or throat trouble
Sinusitis or hay fever
Asthma
Frequent or painful urination
Kidney stone or blood in urine
Sugar or albumin in urine
Bed wetting
Shortness of breath
Pain or pressure in chest
Palpitation or pounding heart
High or low blood pressure
Frequent indigestion
Stomach, liver or intestinal trouble
Gall bladder trouble or gall stones
Stuttering or stammering
Frequent trouble sleeping
Sleepwalking
Frequent or terrifying nightmares
Depression or excessive worry
Nervous trouble
Head injuries with or without unconsciousness
Loss of memory or amnesia
Epilepsy or any type of seizures
Tuberculosis
Jaundice
Goiter
Tumor, growth, cyst or cancer
Severe malocclusion and/or malrelation of the jaws — or any other dental conditions reflecting poor dental health
Drug usage to include LSD, marijuana, or any hallucinogens, hypnotics, narcotics, stimulants or other known harmful or habit forming drugs other than prescribed by a physician

It should be noted that this list does not include all reportable conditions nor are they to be construed as necessarily disqualifying for appointment to the Air Force Academy. They are merely provided as a guide for the applicant in obtaining a complete medical history.

MEDICAL QUALIFICATIONS

Approximately 70 percent of the candidates admitted to the Air Force Academy must have the medical qualifications to enter pilot training upon graduation. The remaining 30 percent admitted are not required to meet the pilot standards but must qualify for an Air Force commission. Some of the candidates admitted in the non-pilot category will qualify for navigator training. Candidates admitted under non-pilot standards will be selected by the Academy on the basis of outstanding academic or leadership aptitude as indicated by their school records and test scores.

Pilot Qualified

Visual Acuity — Distant: Not less than 20/20, uncorrected, each eye. Near: Not less than 20/20, uncorrected, each eye.

Refractive Error — Not greater than −0.25 or +1.75 in any meridian nor an astigmatic correction greater than + or − 0.75 in any one meridian.

Depth Perception — Must be able to pass the depth perception test.

Height — Standing height: Not greater than 76 inches nor less than 66 inches. Minimum height is 66 inches but may be waived to 64 inches at the discretion of the Superintendent.

Sitting height: Not greater than 39 inches (measured while sitting erect — the distance from the top of the head to the chair seat).

Weight — Must be proportionate to height and age and cannot be more or less than as follows:

Height	*Minimum*	*Maximum*
64	105	159
65	106	163
66	107	166
67	111	171
68	115	176
69	119	181
70	123	186
71	127	191
72	131	196
73	135	201
74	139	206
75	143	211
76	147	216
77	151	221
78	153	226
79	157	231
80	161	236

Hearing — Maximum hearing loss cannot be greater than as follows: (ISO Standards 1964)

Each ear: Frequency	500	1000	2000	3000	4000	6000
Loss	30	25	25	*	*	*

*No more than a total of 260 decibel loss for both ears at the 3000, 4000 and 6000 frequency range.

Non-Pilot (Navigator)

Visual Acuity — Distant: Not less than 20/70 uncorrected each eye — must be corrected 20/20. Near: Not less than 20/20 uncorrected each eye.

Refractive Error — Not greater than +3.00 or −1.50 diopters in any one meridian nor astigmatism greater than 2.00 diopters of cylinder.

Depth Perception — Same as pilot standards.

Height — Standing: Same as pilot standards.
Sitting: No standards.

Weight — Same as pilot standards.

Hearing — Same as pilot standards.

Non-Pilot (Commission)

Visual Acuity — Distant: Not less than 20/400 corrected to at least 20/30 in one eye and 20/40 in the other.
Near: Corrected vision of at least 20/20 in one eye and 20/40 in the other.

Refractive Error — Not greater than + or − 5.50 diopters in any one meridian nor an astigmatic correction greater than +3.00 diopters in any one meridian.

Height — Standing Height: Not greater than 80 inches; minimum height is 66 inches but may be waived to 64 inches at the discretion of the Superintendent.

Weight — Same as pilot standards.

Hearing — Same as pilot standards.

FORMAT

Request for Congressional Nomination

Date .....

The Honorable .....
House of Representatives
Washington, D.C. 20515

OR

The Honorable .....
United States Senate
Washington, D.C. 20510

Dear Mr. .....:

Dear Senator .....:

It is my desire to attend the Air Force Academy and to serve in the United States Air Force. I respectfully request that I be considered as one of your nominees for the class that enters the Academy in July 1973 and submit the following data:

Name: *(print as recorded on birth certificate)* .....

Social Security number: .....

Permanent address: *(city, county, state, zip code)* .....

.....

Permanent phone number and area code: .....

Temporary address: .....

.....

Parent's name: .....

Date and place of birth *(spell out month):* .....

.....

High school attended: .....

Date graduated: .....Approximate grade average: .....

I have been active in the following high school extracurricular activities: .....

.....

.....

My reasons for wanting to enter the Air Force Academy are: .....

.....

.....

I will greatly appreciate your consideration of my request for a nomination to the Air Force Academy.

NOTE: Send applications to Members of Congress only; do not send copies to the Air Force Academy. Same format applies to District of Columbia, Canal Zone, Puerto Rico, American Samoa, Guam, and the Virgin Islands. Address to the appropriate nominating authority.

Sincerely,

Signature .....

FORMAT

Request for Vice Presidential Nomination

Date.....

The Vice President
United States Senate
Washington, D.C. 20501

Dear Mr. Vice President:

It is my desire to attend the Air Force Academy and to serve in the United States Air Force. I respectfully request that I be considered as one of your nominees for the class that enters the Academy in July 1973 and submit the following data:

Name: *(print as recorded on birth certificate)* .....

Social Security number: .....

Permanent address: *(city, county, state, zip code)* .....

.....

Permanent phone number and area code: .....

Temporary address: .....

Parent's name: .....

Date and place of birth *(spell out month):* .....

.....

High school attended: .....

Date graduated: .....Approximate grade average: .....

I have been active in the following high school extracurricular activities: .....

.....

.....

My reasons for wanting to enter the Air Force Academy are: .....

.....

.....

I will greatly appreciate your consideration of my request for a nomination to the Air Force Academy.

Sincerely,

Signature.....

FORMAT

Request for Presidential Nomination

Date .....

Associate Director of Admissions
USAF Academy, Colorado 80840

Dear Sir:

It is my desire to attend the Air Force Academy and to serve in the United States Air Force. I request a nomination under the Presidential category for the class that enters the Air Force Academy in July 1973 and submit the following data:

Name: *(print as shown on birth certificate; if different from the name you use, attach a copy of court order, if applicable)* .....

Social Security number: .....

Permanent address: *(city, county, state, zip code)* .....

.....

Permanent phone number and area code: .....

Temporary address: .....

Date and place of birth: *(spell out month)* .....

.....

Date of high school graduation: .....

If member of military *(list your rank, social security number, regular or reserve component, branch of service, and organizational address including PSC and box no.)* .....

.....

If previous candidate: *(list year and candidate number)* .....

Information on Parent

Name, rank, social security number, component and branch of service: .....

.....

Organizational address: .....

Retired or deceased: *(give date and attach copy of retirement orders or casualty report)* .....

.....

Officer personnel: *(attach certified statement of service prepared by personnel officer specifying all periods of active duty)* .....

Enlisted personnel: *(attach statement prepared by personnel officer specifying all periods of active duty, listing date of enlistment and date of enlistment expiration)* .....

.....

Sincerely,

Signature .....

FORMAT

Request for Sons of Deceased or Disabled Veterans Nomination

Date .....

Associate Director of Admissions
USAF Academy, Colorado 80840

Dear Sir:

It is my desire to attend the Air Force Academy and to serve in the United States Air Force. I request a nomination under the Sons of Deceased or Disabled Veterans category for the class that enters the Air Force Academy in July 1973 and submit the following data:

Name: *(print as shown on birth certificate; if different from the name you use, attach a copy of court order, if applicable)* .....

Social Security number: .....

Permanent address: *(city, county, state, zip code)* .....

.....

Permanent phone number and area code: .....

Temporary address: .....

Date and place of birth: *(spell out month)* .....

.....

Date of high school graduation: .....

If member of military *(list your rank, social security number, regular or reserve component, branch of service, and organizational address including PSC and box no.)* .....

.....

If previous candidate: *(list year and candidate number)* .....

Information on Parent

Name, rank, social security number, component and branch of service: .....

.....

Date and place of death or date and place disability occurred: .....

.....

Cause of death or disability: *(forwarding a copy of casualty report or copy of disability retirement order may expedite processing of your application)* .....

.....

Veterans Administration XC claim number: .....

Address of VA office where case is filed: .....

Sincerely,

Signature .....

FORMAT

Request for Sons of Medal of Honor Recipients Nomination

Date.....

Associate Director of Admissions
USAF Academy, Colorado 80840

Dear Sir:

It is my desire to attend the Air Force Academy and to serve in the United States Air Force. I request a nomination under the Sons of Medal of Honor Recipients category for the class that enters the Air Force Academy in July 1973 and submit the following data:

Name: *(print as shown on birth certificate; if different from the name you use, attach a copy of court order, if applicable)* .....

Social Security number: .....

Permanent address: *(city, county, state, zip code)* .....

.....

Permanent phone number and area code: .....

Temporary address: .....

Date and place of birth: *(spell out month)* .....

.....

Date of high school graduation: .....

If member of military *(list your rank, social security number, regular or reserve component, branch of service, and organizational address including PSC and box no.)* .....

.....

If previous candidate: *(list year and candidate number)* .....

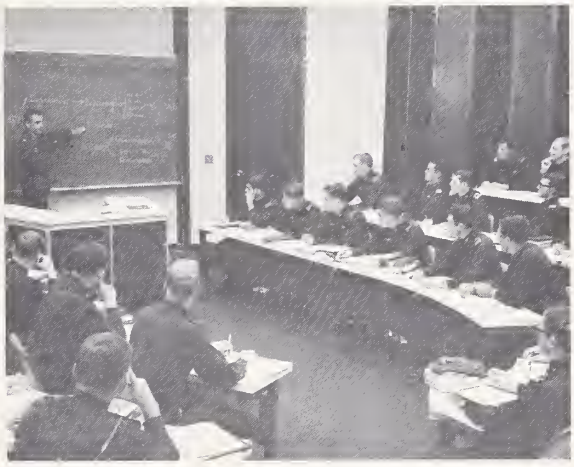
Information on Parent

Name, rank, social security number, component and branch of service of parent to whom the Medal of Honor was awarded: .....

.....

Sincerely,

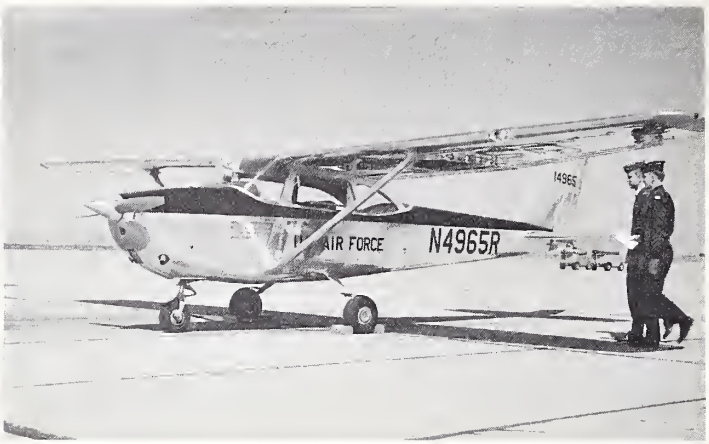
Signature.....



SUMMARY OF COURSE OFFERINGS

Total number of courses offered in the curriculum including core, major, and graduate program courses.

Department	*Number of Courses*
Aeronautics	20
Airmanship	16
Area Studies	6
Astronautics	14
Atmospheric Science	4
Behavioral Sciences	19
Chemistry	23
Chinese	8
Civil Engineering	17
Computer Science	10
Economics	20
Electrical Engineering	23
English	15
Fine Arts	9
French	10
Geography	20
German	10
History	27
Instructional Technology	2
Japanese	8
Law	6
Life Sciences	20
Management	19
Mathematics	32
Mechanics	23
Military Training	10
Navigation	3
Philosophy	9
Physical Education	13
Physics	20
Political Science	26
Russian	10
Science (administered by departments and divisions)	5
Spanish	10



COURSE OFFERINGS

Description of the courses to be offered during the academic year 1972-1973 are listed by subject in alphabetical order. Course numbers have a general meaning. The first digit of a course number indicates the class year for which the course is designed: 100 series for the Fourth Class year; 200 series the Third Class year; 300 series the Second Class year; and 400 series the First Class year. The 500 series indicates graduate-level courses.

Following the description of each course is a code such as 0, 1 or 2. This number is the course unit value which is used to determine a cadet's course load for a semester. After this number there may be an additional number in parentheses which is used for scheduling purposes and identifying the number of class hours the course meets per academic lesson.

Final examination or final report requirements, course prerequisites and semester hours are shown at the end of each course description. A designation of Pass/Fail at the end of a course description means that no letter grade is given and the student receives a Pass or Fail mark for the entire course. Courses without this designation are graded. A number of academic courses are offered in both the fall and spring semesters. In some courses, the credit awarded may be ½ semester hours greater for the longer spring semester than for the fall.

Aeronautics *(Aero)*

Offered by the Department of Aeronautics

Aero 331. *Aerospace Propulsion* 1 (2)
Introduction to aerospace propulsion systems. Lab. *Final exam. Prereq: Completed or enrolled in Physics* 212; *completed or enrolled in Math* 212. *Sem hrs:* 2½ *fall.*

Aero 332. *Aircraft Flight Mechanics* 1 (2)
Introduction to performance, stability and control of airlift vehicles. Lab. *Final exam. Prereq: Aero* 331 *or* 351. *Sem hrs:* 3 *spring.*

Aero 350. *Aeronautical Laboratory* 1 (2)
Selected experiments in the fields of aerodynamics, gas dynamics, propulsion, and flight dynamics. *Final report. Prereq: Completed or enrolled in Aero* 362 *or department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

Aero 351. *Thermodynamics* 1 (1)
Zeroth law and temperature, equations of state, first law and energy, heat capacities, p-v-T surfaces of real substances, second law and entropy, and engineering applications. *Final exam. Prereq: Completed or enrolled in Physics* 212; *completed or enrolled in Math* 212. *Sem hrs:* 2½ *fall or* 3 *spring.*

Aero 361. *Fluid Dynamics I* 1 (2)
Incompressible potential flow, thin airfoil and finite wing theory. One-dimensional compressible flow, oblique shocks and Prandtl-Meyer flow. Introduction to performance, stability and control. Lab. *Final exam. Prereq: Aero* 351 *in preceding semester or B or better in Aero* 331; *completed or enrolled in Math* 351. *Sem hrs:* 2½ *fall or* 3 *spring.*

Aero 362. *Fluid Dynamics II* 1 (2)
Linearized theory for supersonic flow, with incompressible flow as a special case. Similarity solution

with extension to transonic and hypersonic flow. Dynamics of viscous fluids; laminar and turbulent boundary layers. Lab. *Final exam. Prereq: Aero* 361. *Sem hrs:* 2½ *fall or* 3 *spring.*

Aero 363. *Heat Transfer* 1 (1)
Energy transport by conduction, convection, and radiation. General heat conduction differential equation and its application to simple conduction problems with and without heat generation, heat flow in fins, and unsteady heat flows. Treatment of fluid dynamics and thermal boundary layers as applied to flat plates in forced convection. Reynold's analogy, black and gray body radiation, and radiation inside enclosures. Lab. *Final exam. Prereq: Completed or enrolled in Aero* 361 *or B or better in Aero* 331. *Sem hrs:* 2½ *fall or* 3 *spring.*

Aero. 434. *Aircraft and Engine Performance Laboratory* 1 (2)
Selected experiments in the fields of flight mechanics and aerospace propulsion. A laboratory course designed for students not pursuing an aeronautical engineering major. *Final report. Prereq: Aero* 332 *or* 361. *Sem hrs:* 2 *fall or* 2½ *spring.*

Aero 456. *Flight Mechanics* 1 (2)
Take-off and landing, level flight, steady climb and accelerated climb, maximum range and endurance. Longitudinal and lateral static stability and control, maneuvering flight, and dynamic stability. Lab. *Final exam. Prereq: Meeh* 361; *Aero* 361 *or B or better in Aero* 332. *Sem hrs:* 2½ *fall or* 3 *spring.*

Aero. 461. *Propulsion I* 1 (2)
Aerothermochemistry, airbreathing jet propulsion engines, aircraft performance, chemical rocket propulsion, and space propulsion systems. Lab. *Final exam. Prereq: Aero* 361 *or B or better in Aero* 331 *and* 332. *Sem hrs:* 2½ *fall or* 3 *spring*

Aero 462. *Propulsion II* 1 (1)
Advanced studies of air breathing and rocket propulsion systems and other energy conversion techniques. *Final exam. Prereq: Aero* 461. *Sem hrs:* 2½ *fall.*

Aero 463. *Advanced Topics in Aeronautics* 1 (1)
Topics of current interest in aerodynamics, propulsion, performance, stability and control. *Final exam. Prereq: Aero* 362 *or department permission. Sem hrs:* 3 *spring.*

Aero 464. *Preliminary Design of Airlift Vehicles* 1 (2)
Fundamentals of design presented by preliminary design of an advanced airlift vehicle. Determination of vehicle configuration to meet given specifications, weight estimation, selection of propulsive system, performance calculations, longitudinal and lateral static stability analysis. Lab. *Final report. Prereq: Aero* 362; *completed or enrolled in Aero* 456. *Sem hrs:* 4 *spring.*

Aero 466. *Propulsion Design* 1 (2)
Individual problems in propulsion systems design. Lab. *Final report. Prereq: Aero* 462. *Sem hrs:* 4 *spring.*

Aero 472. *Advanced Thermodynamics* 1 (1)
Fundamentals of statistical thermodynamics. Probability concepts, kinetic theory of gases, distribution functions, transport properties, quantum statistics, partition functions, and thermodynamic properties. Boltzmann equation, collision dynamics and relation between statistical and continuum fluid dynamics. *Final exam. Prereq: Aero* 361; *eompleted or enrolled in Physics* 333. *Sem hrs:* 2½ *fall.*

Aero 495. *Special Topics* 1 (1-2)
Selected topics in aeronautics. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department* (*not more than* 3 *sem hrs*).

Aero 499. *Independent Study* 1-2 (0)
Individual study and research supervised by a faculty member. Topic established with the department head. *Final report. Sem hrs:* 2 *to* 4 *fall or spring.*

Aero 551. *Advanced Flight Mechanics* 1 (1)
Advanced topics in dynamics and performance of flight and entry vehicles from the modern control theory viewpoint. Introduction to deterministic and stochastic techniques of Lyapunov, Pontryagin, and Bellman. Topics in hypersonic gas dynamics related to performance of hypervelocity flight vehicles. *Final report. Prereq: Aero* 456. *Sem hrs:* 3 *spring.*

Aero 552. *Experimental Research in Advanced Aeronautics Topics* 1 (2)
Individual experimental research at the graduate level on an approved advanced topic in aeronautics with minimum faculty supervision. A combination laboratory-lecture course with emphasis on the theory, application and use of modern experimental techniques, facilities and instrumentation. Student must plan and conduct a research project and analyze and report his results. *Final report. Prereq: Department permission. Sem hrs:* 3 *spring.*

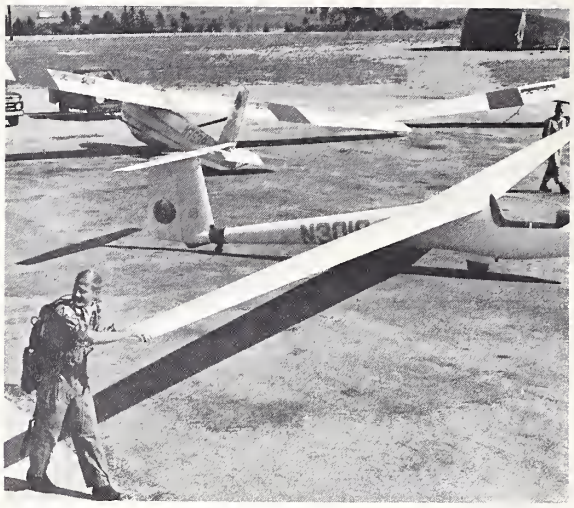
Aero 599. *Independent Study* 2-3 (0)
Independent study and research at the graduate level. Topic established with the department head. *Final report. Sem hrs:* 6 *to* 9 *fall or spring.*

Airmanship *(Armnshp)*

Offered by the Airmanship Division of the Department of Military Instruction under the Commandant of Cadets

Armnshp 101. *Sailplane Introduction* 0 (0)
Required course for the Fourth Class to provide an introduction to the basic principles of flying, motivation for further development of aviation skills, and an appreciation for related responsibilities. Consists of 3-7 sailplane sorties utilizing both winch and aerial tow launches. *Pass/Fail. Sem hrs: None.*

Armnshp 400. T-41 *Flying Training* 2 (3)
Required course for all First Classmen who volunteer to take Air Force pilot training following graduation.



Includes dual flight instruction, ground school, and solo flight training with option for an FAA pilot certificate. *No final. (Credit awarded only when course is completed in addition to normal summer training.) Prereq: 1/C Standing. Sem hrs:* 5 *summer, fall or spring.*

Armnshp 401. *Introductory Flying Training and Term Project* 2 (0)
Designed for cadets who drop Armnshp 400 during a semester subsequent to the time for enrollment in a substitute course. Includes ground school, dual flight instruction and individual study and research under the direction of a faculty member. *Final report. Prereq: Prior enrollment in Armnshp* 400, *same semester. Sem hrs:* 5 *fall or spring.*

Armnshp 450. *Airplane Rating, Private* 0 (0)
Dual instruction, ground school, and solo flight training to complete the requirements for an FAA pilot certificate. This training is conducted with the USAFA Aero Club through the Cadet Aviation Club (a cadet extracurricular activity) and is available to a limited number of cadet volunteers. Any cadet who possesses an FAA private pilot airplane rating may validate this course. *Pass/Fail. Sem hrs:* 2½ *summer, fall or spring.*

Armnshp 451. *Glider Rating, Private* 0 (0)
Dual instruction, ground school and solo flight training to complete the requirements for an FAA Pilot Certificate-Glider Rating Private. *(Credit awarded only when course is completed in addition to normal summer training.) Pass/Fail. Sem hrs:* 1½ *summer, fall or spring.*

Armnshp 452. *Basic Airborne Training* (0)
A three-week course at the U.S. Army Infantry School, Fort Benning, Georgia. Includes basic skills of static line parachute jumping. *(Credit awarded only when course is completed in addition to normal summer training.) Pass/Fail. Sem hrs:* 2½ *summer.*

Armnshp 460. *Airplane Rating, Commercial* 0 (0)
Dual instruction, ground school, and solo flight training to complete the requirements for an FAA Pilot Certificate-Airplane Rating, Commercial. *Pass/Fail. Prereq: Armnshp* 450 *or FAA Private Certificate. Sem hrs:* 1½ *summer, fall or spring.*

Armnshp 461. *Glider Rating, Commercial* 0 (0)
Dual instruction, ground school, and solo flight requirements for a Pilot Certificate-Glider Rating, Commercial. *Pass/Fail. Prereq: Armnshp* 451 *or FAA Pilot Certificate-Glider Rating, Private. Sem hr:* 1 *summer, fall or spring.*

Armnshp 470. *Airplane Rating, Instrument* 0 (0)
Dual instruction, ground school, and instrument trainer instruction to complete the requirements for an FAA Pilot Certificate, Instrument Rating. *Pass/Fail. Prereq: Armnshp* 450 *or FAA Private Pilot Certificate. Sem hrs:* 1½ *summer, fall or spring.*

Armnshp 471. *Glider Rating, Flight Instructor* 0 (0)
Dual instruction, ground school, and solo flight requirements for an FAA Flight Instructor Certificate-Glider Rating. *Pass/Fail. Prereq: Armnshp* 461 *or FAA Pilot Certificate-Glider Rating, Commercial. Sem hr:* 1 *summer, fall or spring.*

Armnshp 480. *Airplane Rating, Flight Instructor* 0 (0)
Meeting the requirements for an FAA Flight Instructor Certificate-Airplane Rating. *Pass/Fail. Prereq: Armnshp* 460. *Sem hrs:* 1½ *summer, fall or spring.*

Armnshp 481. *Cadet Soaring Instructor* 0 (0)
Open to selected cadets who wish to serve as flight

and ground instructors in Armnshp 101, 451, 461, and 471. *Pass/Fail. Prereq: Armnshp* 471. *(Credit awarded only when course is completed in addition to normal summer training.) Sem hrs:* 2 *summer, fall or spring.*

Armnshp 490. *Basic Free Fall Parachuting* 0 (0)
Instruction in emergency use of the parachute more advanced than taught in basic airborne training. Familiarizes cadet with emergency and free fall parachuting as it pertains to his future Air Force career. Completion of seven jumps required. *(Credit awarded only when course is completed in addition to normal summer training.) Sem hr:* 1 *summer, fall or spring.*

Armnshp 491. *Advanced Parachute Training* 0 (0)
Ground and aerial training which allows cadets to progress from basic free fall training through delayed free falls, controlled body maneuvers, precision landing, and competitive parachuting. Requirements are fulfilled toward Class B, C and D Parachute Club of America FAI International Parachuting Licenses. *Pass/Fail. Prereq: Armnshp* 490. *Sem hr:* 1 *fall or spring.*

Armnshp 492. *Cadet Parachute Instructor Training* 0 (0)
Trains selected cadets as assistant instructors for Armnshp 490. Consists primarily of instruction techniques, jumpmaster procedures, and proficiency jumps. Completion of 22 jumps terminating in award of jumpmaster rating. *Prereq: Armnshp* 491. *Pass/Fail. Sem hrs:* 2 *spring.*

Armnshp 493. *Cadet Parachute Instructor* 0 (0)
Open to selected cadets who wish to serve as assistant instructors in Armnshp 490. *Pass/Fail. Prereq: Armnshp* 492. *(Credit awarded only when course is completed in addition to normal summer training.) Sem hrs:* 2 *summer, fall or spring.*

Anthropology

(See Behavioral Science)

Area Studies *(Area Stu)*

Offered by various individual committees on Area Study from departments in the Humanities and Social Sciences Division

Area Stu 351. *The American Identity* 1 (1)
Introduction to interdepartmental study. Considers specific problems of creating and defining an American national identity in such areas as colonial development, the Revolution, national development, expansion, and the Civil War. American developments and culture are examined through the views of the sociologist, the lawyer, the historian, the philosopher, the artist and musician, the political scientist, the economist, and the literary expert. *Final exam. Sem hrs:* 2½ *fall.*

Area Stu 430. *Seminar in Soviet Issues* 1 (2)
An interdisciplinary examination of a particular topic in Soviet affairs. Topics changed annually. *No final. Prereq: Soviet Studies major or permission of the chairman. Sem hrs:* 3 *spring.* (*Last offering: spring* 1973.)

Area Stu 440. *Seminar in Latin American Issues* 1 (2)
An interdisciplinary examination of a particular topic in Latin American affairs. Topics changed annually. *No final. Prereq: Latin American Studies major or permission of the chairman. Sem hrs:* 3 *spring.* (*Last offering: spring* 1973.)

Area Stu 444. *Seminar in American Issues* 1 (2)
Interdepartmental study in depth of current issues affecting American life. Topics change annually. Includes a careful review of economic, sociological, legal, political, historical and literary aspects of a

major twentieth century problem. *Final report. Prereq: American Studies major or permission of the chairman. Sem hrs:* 3 *spring.* (*Last offering: spring* 1973.)

Area Stu 450. *Seminar in Western European Issues* 1 (2)
An interdisciplinary examination of a particular topic in Western European affairs. Topics changed annually. *Final report. Prereq: Western European Studies major or permission of the chairman. Sem hrs:* 3 *spring.* (*Last offering: spring* 1973.)

Area Stu 460. *Seminar in Far Eastern Issues* 1 (2)
An interdisciplinary examination of a particular topic in Far Eastern affairs. Topics changed annually. *No final. Prereq: Far Eastern Studies major or permission of the chairman. Sem hrs:* 3 *spring.* (*Last offering: spring* 1973.)

Astronautics (*Astro*)

Offered by the Department of Astronautics and Computer Science

Astro 332. *Introduction to Astronautics* 1 (1)
Introduction to Air Force space operations. Includes rocket flight within the atmosphere; ballistic missile and space booster trajectories; satellite orbits, lunar and interplanetary missions. Also contains a survey of navigation and guidance, reentry, and the aero pace operating environment. *Final exam. Prereq: Mech* 120. *Sem hrs:* 2½ *fall or* 3 *spring.*

Astro 450. *Principles of Airborne Fire Control* 1 (1)
Fundamentals of vector kinetics, kinematics, Lagrangian dynamics and rigid body motion with applications to fire control. Air-to-ground and air-to-air weapons delivery and effects. Air-to-air missile guidance. Terminal guidance. *Final exam. Prereq: Mech* 361, *Math* 351. *Sem hrs:* 2½ *fall.*

Astro 451. *Astrodynamics* 1 (1)
Fundamentals of two-body orbit mechanics: ballistic missile, satellite, lunar and interplanetary trajectories. Includes survey of associated problems in astronautics related to man in space, powered flight, re-entry, navigation, guidance and military applications. Digital computer used in problem solutions. Planetarium used for instruction. *Final exam. Prereq: Completion of any core math sequence; Physics* 212; *Comp Sci* 200. *Sem hrs:* 2½ *fall or* 3 *spring.*

Astro 452. *Linear Control System Analysis* 1 (2)
Formulation and analysis of the linear control problem by both state variable and transform methods. Synthesis of linear control systems emphasizing the root locus method. Includes laboratory analysis and synthesis with real hardware and/or analog simulation. *Final report. Prereq: Math* 351; *Mech* 361; *Science* 350 *or El Engr* 453. *Sem hrs:* 2½ *fall or* 3 *spring.*

Astro 453. *Advanced Astrodynamics* 1 (1)
Problems in fundamentals of orbit determination, trajectory selection criteria, and flight performance during powered flight and reentry trajectories. Digital computer is used extensively in problem solution. *Final exam. Prereq: Astro* 451 *in preceding semester. Sem hrs:* 2½ *fall or* 3 *spring.*

Astro 454. *Inertial Navigation and Automatic Guidance* 1 (1)
Inertial navigation including studies of the gyroscope, accelerometer, gyrostabilized platform, gyrocompass, system mechanization, navigation equation development and solution. Automatic guidance including methods of developing guidance equation for steering booster rockets to accomplish missions such as orbital injection, orbital intercept, ballistic bombing, and soft landing. *Final exam. Prereq: Astro* 451 *and* 452; *completed or enrolled in Astro* 453. *Sem hrs:* 3 *spring.*

Astro 464. *Aerospace Systems Design* 1 (2)
Design of aerospace systems or subsystems. Selection of design projects dependent upon the interests and qualifications of students. Analog and digital computers are used as design tools. Two field trips and lab. *Final project. Prereq: Astro* 465 *or Astro* 467. *Sem hrs:* 4 *spring.*

Astro 465. *Control System Theory* 1 (1)
Non-linear system analysis including phase plane techniques and Lyapunov stability. Introduction to amplitude modulated and sampled data systems. Optimal control problem of static and dynamic systems. *Final report. Prereq: Astro* 452. *Sem hrs:* 2½ *fall.*

Astro 467. *Mission Analysis for Aerospace Vehicles* 1 (1)
Analysis of aerospace missions and interaction of mission objectives with vehicle design requirements and constraints. Includes systems analysis of propulsion, guidance, navigation, attitude control, thermal control, life support, power, and communications requirements. Preliminary design of a launch vehicle or spacecraft to satisfy a specific mission. Digital computer used as a design tool. *Final report. Prereq: Astro* 451; *completed or enrolled in Astro* 452 *and* 453. *Sem hrs:* 2½ *fall.*

Astro 495. *Special Topics* 1 (1)
Selected topics in astronautics. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department* (*not more than* 3 *sem hrs*).

Astro 499. *Independent Study* 1-2 (0)
Individual study and research supervised by a faculty member. Topic established with the department head. *Final report. Sem hrs:* 2 *to* 6 *fall or spring.*

Astro 550. *Advanced Methods in Astronautics I* 1 (1)
An introduction to mathematical methods in astro-

nautics as applied to the treatment of practical engineering problems. Includes an introduction to optimization and to the method of matched asymptotic expansions. Research project. *Final exam. Prereq: Completed or enrolled in Astro* 452 *and* 453. *Sem hrs:* 2½ *fall.*

Astro 551. *Advanced Methods in Astronautics II* 1 (1)
Advanced topics in astronautics including its rigorous foundations in mathematics and mechanics. Treatment of the n-body problem, gravitational potentials, trajectory prediction, space mission analysis, guidance and navigation via modern perturbation and optimization techniques, e.g., assymptotic concepts and the Pontryagin maximum principle. *Final report. Prereq: Completed or enrolled in Astro* 454. *Sem hrs:* 3 *spring.*

Astro 599. *Independent Study* 1-2 (0)
Independent study and research at the graduate level. Topic established with the department head. *Final report. Sem hrs:* 2 *to* 6 *fall or spring.*

Atmospheric Science *(Atm Sci)*

Offered by the Department of Physics

Atm Sci 250. *Introduction to Atmospheric Science* 1 (1)
Composition, structure, and behavior of the atmosphere. Emphasizes causes of observed phenomena in terms of fundamental physical concepts. Vertical motions, clouds and precipitation; horizontal motions, general circulation; vertical and horizontal analysis of a specific weather situation. Field trip. *Final exam. Prereq: Physics* 211. *Sem hrs:* 2½ *fall or* 3 *spring.*

Atm Sci 351. *Physical Processes in the Atmosphere* 1 (1)
Optical and electrical phenomena of the atmosphere, laws of radiation, cloud and precipitation physics, weather modification, radar meteorology. Field trip. *Final exam. Prereq: Completed or enrolled in Atm Sci* 250. *Sem hrs:* 3 *spring.*

Atm Sci 444. *Dynamics of the Atmosphere* 1 (1)
Fluid motion, divergence and vorticity; equation of continuity; geostrophic, gradient and cyclostrophic flow; pressure changes; fronts; circulation, vorticity and divergence theorems and their applications; numerical weather prediction; atmospheric energy conversions. *Final exam. Prereq: completed or enrolled in Atm Sci* 250 *and Math* 212. *Sem hrs:* 3 *spring.*

Atm Sci 450. *Thermodynamics and Statics of the Atmosphere* 1 (1)
Variables of state, equation of state, thermodynamics of dry and moist air, thermodynamic diagrams; hydrostatic equilibrium and altimetry; changes of phase and processes of saturated air; hydrostatic stability and convection. *Final exam. Prereq: Completed or enrolled in Atm Sci* 250 *and Math* 212. *Sem hrs:* 2½ *fall.*

Behavioral Sciences *(Beh Sci)*

Offered by the Department of Life and Behavioral Sciences

Beh Sci 301. *General Psychology* 1 (1)
Presents those determinants of behavior which contribute to physical, psychological, and social maturity. Applies psychological principles from the areas of learning, perception, motivation, personality, mental health, and group processes to understanding human behavior, achieving personal adjustment and developing Air Force leadership. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring.*

Beh Sci 302. *Applied Behavioral Science in the Military Environment* 1 (1)
An interdiscliplinary study of behavioral science applications related to the leadership role and the military environment. Individual behavior, group processes, and the larger environment are studied as courses of influence on the leader and the led. Topical problems are considered in light of contemporary behavioral theory. *Final exam. Prereq: Beh Sci* 301; *3/C or higher standing. Sem hrs:* 3 *spring.*

Beh Sci 331. *Statistical Methods Applied to Behavioral Science* 1 (2)
Examines univariate and bivariate graphical and statistical methods for describing psychological data. Investigates parametric and nonparametric statistical techniques for experimental hypothesis testing and relates them to design of psychology experiments. Emphasis is placed on learning by doing through description and analysis of actual behavioral science data. Lab. *Final exam. Prereq: Completion of any core math sequence. Sem hrs:* 2½ *fall.*

Beh Sci 350. *Physiological Psychology* 1 (1)
Examines the neurophysiological bases of human and animal behavior. Emphasis is given to central nervous system mechanisms which mediate processes such as learning, intelligence, perception and emotional behavior. Correlates the experiment evidence of physiology and psychology in explaining behavior. *Final exam. Prereq: Life Sci* 210; *Psych* 301. *Sem hrs:* 3 *spring.*

Beh Sci 351. *Cultural Anthropology* 1 (1)
The study of man as culture determines his behavior. Using theories of the nature of culture and cultural processes, contemporary cultures are analyzed focusing on problems inherent in their interrelations. *Final exam. Sem hrs:* 2½ *fall.*

Beh Sci 352. *Social Psychology* 1 (1)
Investigates interactional forces between groups and the individual in society. Examines effects of diverse social and psychological pressures such as public opinion and propaganda on the individual and groups. Emphasis is placed on attitude formation, selective perception, and attitude change. Field trips required. *Final exam. Prereq: Beh Sci* 301. *Sem hrs:* 2½ *fall.*

Beh Sci 360. *Sociology* 1 (1)
Scientific study of the influence of group life on human behavior. Major emphasis is on such contemporary social problems as race relations, drugs, the environment, and cultural change as well as military and civilian attitudes and values. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring.*

Beh Sci 370. *Tests and Measurements in Psychology* 1 (1)
Introduction to the general area of educational and psychological measurement. Theory, content, and uses of measuring devices in the determination and analysis of individual differences. Emphasis on performance, ability, and achievement tests and interpretation of test results. *Final exam. Prereq: Beh Sci* 301 *and* 331. *Sem hrs:* 2½ *fall.*

Beh Sci 372. *Experimental Psychology* 1 (2)
Experimental design and psychological research methods with special application to Air Force problems of human behavior. Considers major experimental methods and principles used in solution and analysis of problems related to psychological research. Lab. *Individual research project. Prereq: Beh Sci* 301 *and* 331. *Sem hrs:* 3 *spring.*

Beh Sci. 380. *Psychology of Personality* 1 (1)
Analysis of principal aspects of personality, its determinants, and major theoretical problems. Emphasis is placed on study of major personality theories and contribution of each to understanding personality from clinical and experimental viewpoints. Related research and assessment techniques are reviewed. *Field trips required. Final exam. Prereq: Beh Sci* 301. *Sem hrs:* 3 *spring.*

Beh Sci 435. *Psychology of Learning* 1 (2)
Investigation of the learning process to include basic principles of learning and critical examination of learning theories. Emphasis on learning research methodology and evaluation of research on learning principles. Current applications of research and theories are reviewed. Lab. *Final exam. Prereq: Beh Sci* 372 *or department permission. Sem hrs:* 2½ *fall.*

Beh Sci 451. *Ethnology* 1 (1)
Examines contemporary American culture and compares it with the culture of the Far East, Latin America, Africa, and the Middle East. Emphasizes problems of Air Force officers serving in foreign countries. Individual problem-oriented research paper and briefing. *Sem hrs:* 3 *spring.*

Beh Sci 455. *Systems of Psychology* 1 (1)
Development and historical basis of psychological thought from the early Greeks to the present. Major problems, trends, and various systematic approaches to the study of human behavior. Emphasis on development and role of theory and procedures in relation to other social and natural science. Seminar papers and presentations. *Final exam. Prereq: Beh Sci* 372 *and* 380. *Sem hrs:* 2½ *fall.*

Beh Sci 470. *Psychology of Perception* 1 (2)
Examines the role of perceptual processes in determining orientation of the individual to the world. Emphasis on an understanding of theoretical basis and appropriate experimental methodologies for the investigation of sensory mechanisms, perceptual organization and influence of personal factors on perception. Lab. *Final exam. Prereq: Beh Sci* 372. *Sem hrs:* 3 *spring.*

Beh Sci 480. *Professional Issues in Psychology* 1 (1)
Capstone senior seminar course. Reviews current theoretical and applied issues in psychology. Topics are selected for their applicability to the roles of an Air Force officer with a major interest in psychology. Among topics discussed are: the relevance of psychological research to Air Force requirements, psychological warfare, professional ethics, international similarities and differences in psychology, circadian rhythm research, testing and measurement, problems and aspirations of clinical psychology, generalization versus specialization, and relationships with law, medicine, and psychiatry. Seminar papers and presentations. *Prereq: Beh Sci* 455. *Sem hrs:* 3 *spring.*

Beh Sci 495. *Special Topics* 1 (1)
Selected topics in psychology. Fall 1972 offering: Abnormal Psychology; Spring 1973 offering: Psychological operations. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department (not more than* 3 *sem hrs).*

Beh Sci 570. *Industrial Psychology* 1 (2)
Investigation of variables affecting job performance in military and industrial environments. Emphasizes personnel measurement, selection and appraisal, social considerations in a working environment, systems development, and research methodology in analysis of industrial behavior. A review of the literature or completion of an individual research project on a selected topic are required. *Final exam. Prereq: Psych* 302. *Sem hrs:* 3 *fall.*

Beh Sci 577. *Engineering Psychology* 1 (1)
Survey of human factors in engineering with particular reference to human functions in man-machine systems. Consideration of human abilities and limitations in relation to design and development of subsystems, equipment, and work environments in aerospace systems. A review of the literature or completion of an individual research project on a selected human factors topic are required. *Final exam. Prereq: Life Sci* 210; *Psych* 301. *Sem hrs:* 3 *spring.*

Beh Sci 599. *Independent Study, Graduate Level* 1 (0)
Independent research or practicum in a specific area of behavioral science. Conducted on a tutorial basis. *Term paper. Prereq: 1/C standing; department permission. Sem hrs:* 3 *fall or spring.*

Chemistry *(Chem)*

Offered by the Department of Chemistry

Chem 101-102. *General Chemistry* 1-1 (2-2)
Atomic structure and its relation to chemical bonding, structure and periodic law concepts. Solution chemistry including acid-base theory, equilibria, and electrochemistry. Introduction to chemical kinetics, organic and thermochemistry. Laboratory includes qualitative analysis for selected elements. *Final exam both semesters. Must be taken sequential. Sem hrs: Chem* 101 — 2½ *fall; Chem.* 102 — 3 *spring.*

Chem 121-122. *Principles of Chemistry* 1-1 (2-2)
Atomic, molecular, and crystalline structure. States of matter. Chemical bonding. Equilibria and kinetics of chemical processes. Solution chemistry including acid-base theory, oxidation-reduction reactions, ionic equilibria, and electrochemistry. Properties of selected elements and their compounds. Introduction to chemical thermodynamics and organic chemistry. Laboratory experiments in chemical principles and processes; qualitative analysis. *Final exam both semesters. Must be taken sequential. Sem hrs: Chem* 121 — 2½ *fall; Chem* 122 — 3 *spring.*

Chem 151. *Accelerated General Chemistry* 1 (2)
Atomic structure and orbitals, chemical reactions, kinetics and equilibria of gases and solutions, acid-base theory and electrochemistry. Introduction to organic and thermochemistry. No laboratory experiments. Students are chosen by the department on placement examination scores. Successful completion fulfills requirements for Chem 101-102. *Final exam. Sem hrs:* 2½ *fall plus* 3 *semester hours validation credit for Chem* 122.

Chem 222. *Analytical Chemistry* 1 (2)
Laboratory instruction in classical and modern analytical measurements, supplemented with lectures which emphasize the principles involved in the laboratory. *Final exam. Prereq: Chem* 102, 122 *or* 151. *Sem hrs:* 3 *spring.*

Chem 233. *Organic Chemistry I* 1 (1)
Classification and naming of organic compounds, reactions of aliphatic and aromatic compounds, stereochemistry, introduction to resonance, spectroscopy, and reaction mechanisms. *Final exam. Prereq: Chem* 102 *or* 122 *or* 151. *Concurrent enrollment in Chem* 243 *is recommended but is optional for non-chemistry majors. Sem hrs:* 2½ *fall.*

Chem 234. *Organic Chemistry II* 1 (1)
Continuation of the reactions of aliphatic and aromatic compounds and reaction mechanisms. Introduction to carbohydrates, polynuclear aromatics, heterocyclic compounds, amino acids and proteins, and multi-step syntheses. *Final exam. Prereq: Chem* 233. *Concurrent enrollment in Chem* 244 *is recommended but is optional for non-chemistry majors. Sem hrs:* 3 *spring.*

Chem 243. *Organic Chemistry I Lab* 1 (2)
Experiments in preparation, purification, and characterization of typical organic compounds. Introduction to natural product extractions, infrared spectroscopy, and chromatography as used in organic chemistry. *Preparation of a short paper and a brief oral presentation on a selected topic. No final. Prereq: Completed or enrolled in Chem* 233. *Sem hrs:* 2 *fall.*

Chem 244. *Organic Chemistry II Lab* 1 (2)
Experiments in qualitative organic analysis including exercises which use infrared spectroscopy and thin layer and gas chromatography. Preparation, purification, and characterization of selected aromatic compounds. Investigation of and experiments utilizing organic name reactions. Preparation of a short paper and a brief oral presentation on a selected topic. *No final. Prereq: Chem* 243; *completed or enrolled in Chem* 234. *Sem hrs:* 2½ *spring.*

Chem 333. *Instrument Analysis* 1 (2)
Theory and use of common analytical and research instruments. Subjects include: visible-ultraviolet emission and absorption spectroscopy, infrared spectroscopy, nuclear magnetic resonance, x-ray, mass spectrometry, gas chromatography, and electrochemical techniques. Lab. *Final exam. Prereq: Chem* 222 *or completed or enrolled in Chem* 335. *Sem hrs:* 2½ *fall.*

Chem 335. *Physical Chemistry I* 1 (1)
Chemical thermodynamics and equilibria; properties of gases, liquids, and solutions; phase equilibria; electrochemistry. *Final exam. Prereq: Chem* 102 *or* 122; *completion of any core math sequence. Sem hrs:* 2½ *fall.*

Chem 336. *Physical Chemistry II* 1 (1)
Chemical kinetics, surface chemistry, ionic equilibria, introduction to quantum theory, molecular structure, and spectroscopy. *Final exam. Prereq: Chem* 335. *Sem hrs:* 3 *spring.*

Chem 334. *Physical Chemistry Lab* 1 (2)
Laboratory experiments including molecular weight determinations; physical and thermodynamic properties of gases and liquids; thermochemistry of reactions and solutions; one, two, and three component phase equilibria; homogeneous and heterogeneous chemical equilibria; colligative properties of solutions; electrochemistry; transport phenomena in solutions; surface phenomena. Precision of measurement, statistical treatment of data and graphical techniques are emphasized. *Final exam. Prereq: Chem* 335; *completed or enrolled in Chem* 336. *Sem hrs:* 2½ *spring.*

Chem 381. *Pollution of Man's Environment* 1 (1)
Discussion of the nature, chemistry and alteration of the environment. Major areas of study include air and water and the effects pollutants have on the environment. Fundamental concepts of oceanography, water chemistry, geochemistry, and limnology are introduced. *Final exam and report. Prereq:* 1C *or* 2C *standing. Sem hrs:* 3 *spring.*

Chem 431. *Theoretical Inorganic Chemistry* 1 (1)
Theoretical approach to atomic structure, covalent bonding and molecular structure; ionic compounds and coordination compounds; oxidation potentials; acid-base theories; non-aqueous solvents. *Final exam. Prereq: Chem* 336. *Sem hrs:* 2½ *fall.*

Chem 432. *Systematic Inorganic Chemistry* 1 (1)
Applications of Chem 431 with emphasis on a systematic study of the behavior of chemical elements and their inorganic compounds. *Final exam. Prereq: Chem* 431. *Sem hrs:* 3 *spring.*

Chem 433. *Advanced Organic Chemistry* 1 (1)
Molecular structure including bonding and resonance. Kinetic and non-kinetic methods for determining reaction mechanisms. Influence of inductive, field, and steric effects on reaction rates and mechanisms. Application to aliphatic and aromatic substitution reactions, reactions of carboxylic acids and esters, enolization reactions, addition reactions, and free radical reactions. *Preparation of a paper and an oral presentation on a selected topic. Final exam. Prereq: Chem* 234. *Sem hrs:* 2½ *fall.*

Chem 434. *Biochemistry* 1 (1)
Chemistry of life processes including comparative biochemistry; chemical nature of biomolecules (carbohydrates, lipids, amino acids and proteins, nucleic acids and their components, porphyrins, chlorophyll, and enzymes); catabolism and anabolism; metabolic regulation; protein synthesis; biochemical genetics. The areas of vitamins, coenzymes and enzyme cofactors, steroids, and mineral metabolism are covered as intimate parts of the mechanisms of the metabolic pathways. *Final exam. Prereq: Chem* 234. *Sem hrs:* 3 *spring.*

Chem 435. *Advanced Physical Chemistry* 1 (1)
Classical chemical thermodynamics. Extension of basic principles to real systems. Topics treated include gases, electrolytic and nonelectrolytic solutions, surface systems, and galvanic cells. *Final exam. Prereq: Math* 351; *completed or enrolled in Chem* 336. *Sem hrs:* 2½ *fall.*

Chem 443. *Advanced Physical Chemistry Lab* 1 (2)
Laboratory experiments including atomic and molecular properties; chemical kinetics; spectroscopy; radiochemical tracer techniques; high vacuum techniques. The use of modern instrumentation is emphasized. *Final exam. Prereq: Chem* 336 *and* 344. *Sem hrs:* 2 *fall.*

Chem 495. *Special Topics* 1 (1)
Selected topics in chemistry. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department (not more than* 3 *sem hrs).*

Chem 499. *Independent Study* 0-2 (0)
Individual research under the direction of a faculty member. Includes use of chemical literature. *No final. Prereq: Chem* 244 *and* 344; *department permission. Sem hrs:* 1 *to* 5 *fall or spring.*

Chinese

(See Foreign Languages)

Civil Engineering *(Civ Engr)*

Offered by the Department of Civil Engineering

Civ Engr 340. *Surveying* 1 (2)
Plane surveying and use of basic equipment including chain, level, transit, theodolite, and plane table alidade. Field problems in measurement of distance, leveling, line direction, angle measurement, horizontal curves, and topography. Introduction to photogrammetry. *Final exam. Sem hrs:* 2½ *fall.*

Civ Engr 352. *Water Supply and Waste Disposal* 1 (1)
Design of systems for the collection, treatment and distribution of water and for the collection, treatment and disposal of waste water. *Final exam. Prereq: Civ Engr* 366. *Sem hrs:* 3 *spring.*

Civ Engr 366. *Fundamental Hydraulics* 1 (1)
Application of the principles of incompressible fluid mechanics. Forces on submerged bodies, dams, potential flow, conduit flow, open-channel flow, dynamic similitude and turbomachinery. Laboratories in head-loss determination and flow measurement. *Final exam. Prereq: Completed or enrolled in Mech* 361. *Sem hrs:* 2½ *fall.*

Civ Engr 432. *Construction Engineering* 1 (1)
Construction as an industry, types of construction, construction methods, equipment, materials, methods of cost estimating and scheduling. Introduction to plans and specifications, building codes and standards. The professional practice of engineering. *Final exam. Sem hrs:* 2½ *fall.*

Civ Engr 441. *Soil Mechanics* 1 (2)
Engineering properties of soils and shear strength of cohesive and cohesionless soils; consolidation of soils and settlement of structures; stress distribution; lateral earth pressures on structures; ultimate bearing capacity; principles of foundation design. Selected laboratory exercises in soil testing. *Final exam. Prereq: Completed or enrolled in Mech* 362. *Sem hrs:* 3 *spring.*

Civ Engr 442. *Foundation Engineering* 1 (1)
Effects of sub-soil conditions and the behavior of soils on foundation type. Analysis and design of footings, pile foundations, retaining walls, piers, abutments, sheet piling, and pavement foundations. *Final exam. Prereq: Civ Engr* 441; *completed or enrolled in Civ Engr* 455. *Sem hrs:* 2½ *fall.*

Civ Engr 450. *Properties of Materials Laboratory* 1 (2)
Behavior of construction materials including theories of failure. Principles of testing machines and measuring devices. Application of American Society of Testing Materials (ASTM) standard techniques to demonstrate behavior of structural materials. *No final. Prereq: Mech* 362. *Sem hrs:* 2½ *fall or* 3 *spring.*

Civ Engr 451. *Structural Analysis* 1 (1)
Behavior of statically determinate and indeterminate structures due to various loadings and deflections. Classical deflection analyses of bending and axial force elements lead into stiffness and flexibility solutions for indeterminate structures. The digital computer is used for highly indeterminate structures. *Final exam. Prereq: Mech* 362. *Sem hrs:* 2½ *fall or* 3 *spring.*

Civ Engr 453. *Structural Steel Design* 1 (1)
Design of structural steel elements including tension members, compression members, beams, trusses and plate girders. Riveted, bolted and welded connections are used in design applications. Plastic design of beams and frames. *Final exam. Prereq: Civ Engr* 451. *Sem hrs:* 2½ *fall or* 3 *spring.*

Civ Engr 454. *Structural Dynamics* 1 (1)
Analysis of structures under dynamic loads. Rigorous analysis of single- and multi-degree-of-freedom systems including the development and use of response spectra. Introductory coverage of numerical and graphical integration, distributed mass systems, and elastoplastic behavior. *Final exam. Prereq: Civ Engr* 451. *Sem hrs:* 3 *spring.*

Civ Engr 455. *Reinforced Concrete Design* 1 (1)
Beams, columns, and slabs. Flexure, shear, tensile, anchorage, bond shrinkage, creep, and temperature change stresses are included in design problems. Ultimate Strength Design Theory is emphasized in design problems. *Final exam. Prereq: Civ Engr* 451. *Sem hrs:* 2½ *fall or* 3 *spring.*

Civ Engr 456. *Structural Engineering* 1 (2)
Design of complete structures of steel and reinforced concrete including foundation design, structural frames, floor systems, wall systems and roof systems. Determination of design loads on multi-story structures. *Final report. Prereq: Civ Engr* 441, 453 *and* 455. *Sem hrs:* 3 *spring.*

Civ Engr 461. *Air Base Engineering* 1 (1)
Principles of planning, land use, regulatory measures, design considerations for airport and aviation system facilities emphasizing the interface of the aviation system with the urban and natural environment. Topics include airspace criteria, geometric design of airfields, zoning, noise abatement and pollution control. *Final exam. Sem hrs:* 3 *spring.*

Civ Engr 464. *Civil Engineering Design* 1 (2)
Individual or group design of civil engineering projects in the areas of structural, soils and environmental engineering design. Individual laboratory, experimental or analytic investigation in support of civil engineering design. Specialized topics in structural steel design, reinforced concrete design, structural dynamics, soil dynamics, aerospace facilities design, environmental quality control design, architectural design, and air base master planning may be studied. Students are individually supervised but must formulate their own investigation techniques and conclusions. *Final report. Prereq:* 1/C *standing; an engineering major; and department permission. Sem hrs:* 4 *fall or spring.*

Civ Engr 495. *Special Topics* 1 (1)
Selected topics in civil engineering. Fall 1972 offering: Environmental Science. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department (not more than* 3 *sem hrs.)*

Civ Engr 499. *Independent Study* 0-1 (0)
Individual study and research in an advanced civil engineering topic approved by the department head. *Final report. Sem hrs:* 1 *to* 3 *fall or spring.*

Civ Engr 551. *Advanced Structural Analysis* 1 (1)
Advanced application of the general flexibility and stiffness methods using matrix algebra to the analysis of plane elastic framed structures. Introductory coverage of the analysis of inclined members, non-prismatic members influence lines, trusses and arches. *Final exam. Prereq: Civ Engr* 451. *Sem hrs:* 2½ *fall.*

Computer Science *(Comp Sci)*

Offered by the Department of Astronautics and Computer Science

Comp Sci 200. *Basic Programming* 1 (1)
General theory of stored programs and programming with emphasis on methods of numerical analysis, optimization, information storage and retrieval. Preparation and execution of programs on the computer. *Final exam. Prereq:* 3/C *standing or department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

Comp Sci 362. *Computer Simulation* 1 (1)
Theory of system modeling and computer simulation; simulation languages; queuing theory. Includes preparation of several computer programs and a group study of a real world problem. *Final report. Prereq: Math* 357; *Comp Sci* 200. *Sem hrs:* 3 *spring.*

Comp. Sci 381. *Intermediate Digital Computer Programming* 1 (1)
General concepts and specific exercises in digital computer programming at an intermediate level. Programs are written in assembly language and higher level languages emphasizing the basic principles of programming languages for use in the advanced courses. Applications in symbol and bit manipulation, sort and searches, and large file manipulation. Includes preparation and execution of several computer programs. *Final exam. Prereq: Comp Sci* 200. *Sem hrs:* 2½ *fall or* 3 *spring.*

Comp Sci 463. *Information Retrieval* 1 (1)
Techniques of designing and implementing data management systems including file organization, file maintenance, retrieval, selection of computer systems, and data structures. Includes individual preparation of computer programs and a group project designing an information system. *Final report. Prereq: B or better in Comp Sci* 381. *Sem hrs:* 2½ *fall.*

Comp Sci 483. *Programming Systems* 1 (1)
Assemblers, translators, interpreters. Program organization for Von Neumann and stack machines. Grammars for programming languages. Scanners and recognizers. Includes preparation of several computer programs. *Final report. Prereq: Comp Sci* 381; *Philos* 370. *Sem. hrs:* 2½ *fall.*

Comp Sci 484. *Programming Systems Design* 1 (1)
Techniques of compiler writing. Syntax-directed compilers. Supervisor systems for time-sharing and batch processing. Includes design and construction of a compiler and an operating system. *Final report. Prereq: C or better in Comp Sci* 483. *Sem. hrs:* 3 *spring.*

Comp Sci 495. *Special Topics* 1 (1)
Selected topics in computer science. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department (not more than* 3 *sem hrs).*

Comp Sci 499. *Independent Study* 1-2 (0)
Individual study and research supervised by a faculty member. Topic established with the department head. *Final report. Sem hrs:* 2 *to* 6 *fall or spring.*

Comp Sci 581. *Artificial Intelligence* 1 (1)
Introduction to problem solving and heuristic programming. Theorem proving programs. Question answering programs and natural language communication with machines. Pattern recognition. *Final exam and final report. Prereq: Department permission. Sem hrs:* 3 *spring.*

Comp Sci 586. *List Processing and String Manipulation* 1 (1)
Computation concerned with the manipulation of unpredictably structured data including lists, trees and strings. Syntax, semantics and use of languages such as LISP and SNOBOL. *Final exam. Prereq: Department permission. Sem hrs:* 2½ *fall.*

Economics *(Econ)*

Offered by the Department of Economics and Management

Econ 211. *Economic Principles and Problems* 1 (1)
Emphasizes economic principles and problems relevant to the mixed enterprise economy of the United States. Includes macroeconomic analysis of national income determination and stabilization. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring. (Cadets taking Econ* 211 *in the fall must take Econ* 212 *in a spring semester. Cadets taking Econ* 211 *in the spring must take Econ* 212 *in a fall semester.)*

Econ 212. *Economics of National Security* 1 (1)
Emphasizes the application of theoretical analysis to achieve efficient allocation of resources in the nation's defense effort. Includes traditional microeconomics. Demand theory, production theory, and theory of the firm are analyzed. *Final exam. Prereq: Econ* 211; *completed prior to the fifth semester. Sem hrs:* 2½ *fall or* 3 *spring.*

Econ 333. *Price Theory* 1 (1)
Traditional microeconomic theory emphasizing the principles of product and factor pricing, allocation and employment of resources, and the implications of varying market structures. Investigates the usefulness of price theory in decision making. *Final exam. Prereq: Econ* 212. *Sem hrs:* 2½ *fall.*

Econ 350. *International Economics* 1 (1)
Economic aspects of international relations. Includes the theory of international trade, relationships between national currencies under alternative international monetary systems, the balance of payments, commercial policy, and economic warfare. *Final exam. Prereq: Econ* 212. *Sem hrs:* 2½ *fall or* 3 *spring.*

Econ 373. *Public Finance* 1 (1)
Nature of the private and public sectors; theory of public expenditures; nature of the budget system; sources of public revenues, principles and problems of taxation, personal income taxation, corporate income taxation, state and local taxation; theory of expenditure taxation. *Final exam. Prereq: Econ* 212. *Sem hrs:* 2½ *fall.*

Econ 375. *Monetary Economics* 1 (1)
Fundamental monetary concepts, history and development of financial institutions, and instruments of monetary economics. Use of tools and techniques of economic theory; analysis of determinants of interest rates and credit availability with special emphasis on current domestic and international issues of monetary policy. *Final exam. Prereq: Econ* 212. *Sem hrs:* 3 *spring.*

Econ 451. *Economic Problems of USSR and Eastern Europe* 1 (1)
Underlying assumptions, principles, and organization of the Soviet and East European economies. Historical and ideological backgrounds, industry, labor, resources, trade, transportation, and problems of planning and rapid industrialization. Emphasizes the agricultural sectors, role of the industrial manager, and the problems of incentives. Comparison of selected Soviet-type economic models. *Final exam. Prereq: Econ* 212. *Sem hrs:* 2½ *fall.*

Econ 452. *Economic Problems of Developing Areas* 1 (1)
Theory and policy of economic development. Examination of classical and modern theories of development. The problems of accelerating development in developing countries and maintaining growth in advanced economies. *Final exam. Prereq: Econ* 212. *Sem hrs:* 2½ *fall or* 3 *spring.*

Econ 456. *Macroeconomic Theory* 1 (1)
Analysis of the determination of level of national income and employment in terms of national income accounting and aggregative theory. Treats classical, Keynesian, and neo-Keynesian theories of income level, fluctuation, and growth. Evaluation of various economic policies designed to promote economic stability. *Final exam. Prereq: Econ* 211. *Sem hrs:* 3 *spring.*

Econ 458. *Quantitative Economic Theory* 1 (1)
Application of quantitative tools of microeconomic theory. Includes theory of the firm, theory of the consumer, and related defense analyses. *Final exam. Prereq: Completion of any core math sequence; Econ* 333. *Sem hrs:* 3 *spring.*

Econ 465. *Introduction to Econometrics* 1 (1)
Application of statistical tools to economic data. Includes methodology, econometric model building, and statistical inference. Emphasizes the application of econometric theory to original empirical problems. *Final exam. Prereq: Econ* 212; *Math* 232; *Mgt* 331 *or Math* 358. *Sem hrs:* 3 *spring.*

Econ 466. *Seminar in Econometrics* 1 (2)
Continues development of model building and analytical tools and stresses their application to economic problems. Emphasizes individual and original research. *Final exam. Prereq: Econ* 465. *Sem hrs:* 2½ *fall.*

Econ 471. *Development of Economic Analysis* 1 (1)
A systematic study of the development of economic analysis from early scholars to Twentieth Century economists. Major emphasis on classical, neoclassical, and Keynesian economists and their contributions. Special emphasis on those theoretical concepts that have been most influential in modern economic theory. *Final exam. Prereq: Econ* 212. *Sem hrs:* 2½ *fall.*

Econ 472. *Seminar in International and Development Economics* 1 (2)
A study of prominent major issues in international and development economics, utilizing economic theory in their analysis. Lectures on the relevant theory and area case studies. Emphasis on significant student participation in the form of research, presentation and discussion of papers. Student research may be oriented toward any geographical or theoretical area of interest in the realms of development and international economics. *Final exam. Prereq: Econ* 350 *or Econ* 452 *or department permission. Sem hrs:* 3 *spring.*

Econ 477. *Defense Economics* 1 (2)
Microeconomic methodology of systems analysis and cost effectiveness as involved in defense decision making; macroeconomic implications of the Cold War, active warfare, R&D and procurement expenditures, arms control, and disarmament. Readings supplemented by a schedule of lectures by top defense analysts. Individual or group research into some area of defense economics is required. *Final exam. Prereq: 1/C standing and departmental permission. Sem hrs:* 3 *spring.*

Econ 479. *Policy Issues in Contemporary Economics* 1 (2)
Application of economic theory to contemporary economic issues and policies. Includes methodology, income and employment, urban issues, racial discrimination, education, migration, income maintenance, and other selected domestic issues. *Final exam. Prereq: Econ* 212; *department permission. Sem hrs:* 2½ *fall.*

Econ 495. *Special Topics* 1 (1)
Selected topics in economics. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department (not more than* 3 *sem hrs).*

Econ 499. *Independent Study* 1-2 (0)
Tutorial investigation of a specific area of economics. *Final report. Sem hrs:* 2 *to* 5 *fall or spring.*

Econ 551. *Advanced Economic Theory I* 1 (2)
Review of microeconomic theory of consumption, production, markets, welfare economics, general equilibrium, growth, decision and game theory. *Final exam. Prereq: Econ* 333 *or* 458. *Sem hrs:* 2½ *fall.*

Econ 552. *Advanced Economic Theory II* 1 (2)
Development and critique of complete macroeconomic models of income determination, with general equilibrium treatment as appropriate; detailed investigation of central macro relations; and introduction to theory of modern economic growth. *Final exam. Prereq: Econ* 456 *and* 551. *Sem hrs:* 3 *spring.*

Electrical Engineering *(El Engr)*

Offered by the Department of Electrical Engineering

El Engr 333. *Introduction to Electronic Systems I* 1 (2)
Concept of an electric circuit, analysis of complete response by modeling and laboratory techniques, conduction in solids, P-N junctions, simple diode and transistor applications. Lab. *Final exam. Prereq: Completed or enrolled in Math* 210 *or* 211. *El Engr* 333 *or* 351 *must be taken as cadet's first course in El Engr, unless department permission is granted. Sem hrs:* 2½ *fall or* 3 *spring.*

El Engr 334. *Introduction to Electronic Systems II* 1 (2)
Continuation of El Engr 333. Includes vacuum and semiconductor devices with applications in instrumentation, communication, and energy conversion systems. Lab. *No final. Prereq: El Engr* 333 *in preceding semester. Sem hrs:* 2½ *fall or* 3 *spring.*

El Engr 351. *Analysis of Electronic Systems I* 1 (2)
Concept of a circuit, mathematical analysis of electric circuits, signal representation, conduction in solids, P-N junctions, simple diode and transistor applications. Lab. *Final exam. Prereq: Completed or enrolled in Math* 210 *or* 211. *El Engr* 333 *or* 351 *must be taken as cadet's first course in El Engr, unless department permission is granted. Sem hrs:* 2½ *fall or* 3 *spring.*

El Engr 352. *Analysis of Electronic Systems II* 1 (2)
Continuation of El Engr 351. Includes vacuum and semiconductor devices with applications to instrumentation, control, and energy conversion systems. Lab. *Final report. Prereq: El Engr* 351 *in preceding semester. Sem hrs:* 2½ *fall or* 3 *spring.*

El Engr 361. *Intermediate Circuit Analysis* 1 (1)
Mathematical analysis of electric circuits with emphasis on fundamental principles, natural and forced response, frequency response, pole-zero concept, loop and nodal analysis, and basic network theorems. Lab. *Final exam. Prereq: El Engr* 333 *or* 351. *Sem hrs:* 2½ *fall.*

El Engr 362. *Intermediate Electronics* 1 (1)
Semiconductor and vacuum diodes, power supplies and filters, four-terminal networks, and the vacuum tube and transistor in amplifiers. Lab. *Final exam. Prereq: El Engr* 333 *or* 351. *Sem hrs:* 2½ *fall.*

El Engr 363. *Advanced Circuit Theory* 1 (1)
Steady-state response of inductive and capacitive circuits using s-plane geometry techniques. Includes resonance, impedance and circle diagrams, generalized AC networks, magnetically coupled circuits, polyphase circuits, and an introduction to network synthesis and filters. Lab. *Final exam. Prereq: Grade of B or better in El Engr* 361 *or department permission. Sem hrs:* 3 *spring.*

El Engr 364. *Advanced Electronics* 1 (1)
Development of semiconductor devices and circuits based on a piecewise linear approximation. Transistor biasing, loading, and amplifier design; comparison of design techniques between high vacuum and semiconductor circuits; amplifier circuits with feedback and frequency compensation; waveshaping, pulse and digital circuits. Lab. *Final exam. Prereq: Grade of B or better in El Engr* 362 *or department permission. Sem hrs:* 3 *spring.*

El Engr 365. *Fundamentals of Electromagnetic Fields* 1 (1)
Classical boundary value problems in static electric and magnetic fields. Introduction to time-changing fields. Relationship established between field and circuit theory. Lab. *Final exam. Prereq: Physics* 212; *El Engr* 333 *or* 351. *Sem hrs:* 2½ *fall.*

El Engr 366. *Advanced Electrical Energy Conversion* 1 (1)
Principles of energy conversion, rotating AC and DC machinery, and transformers. Electromechanical dynamic equations formulated from applied basic principles, and s-plane analysis utilized to obtain transfer functions. Lab. *Final exam. Prereq: El Engr* 365. *Sem hrs:* 2½ *fall.*

El Engr 453. *Analog Computation* 1 (1)
Analog computer techniques applied to the solution of differential equations. Electronic computing circuits, time and magnitude scale factors, and problem set-up procedures. *Final exam. Prereq: Completion of any core math sequence; completed or enrolled in El Engr* 333 *or* 351 *and department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

El Engr 455. *Fundamentals of Electronic Communication* 1 (1)
Power amplifiers, signal-flow-graph theory, oscillators, and inverse-feedback amplifiers. Principles of basic military communication systems including modulation, frequency selective circuits, wave-shaping, transmitters, receivers, transmission lines, propagation, antennas and radar. Lab. *Final exam. Prereq: El Engr* 352 *or* 362 *in preceding semester. Sem hrs:* 2½ *fall or* 3 *spring.*

El Engr 462. *Communication Engineering* 1 (1)
Techniques of modern communication systems from the circuits viewpoints. Lab. *Final exam. Prereq: El Engr* 362 *and* 363. *Sem hrs:* 2½ *fall.*

El Engr 464. *Design* 1 (1)
Application of basic engineering design principles in the electrical engineering area. Area of emphasis depends on preparatory courses taken. *Final project. Prereq: Department permission. Sem hrs:* 4 *fall or spring.*

El Engr 477. *Electromagnetic Transmission and Radiation* 1 (1)
Maxwell's equations and their application to transmission lines, waveguides, and antennas. Plane waves in dielectric and conducting media. Lab. *Final exam. Prereq: El Engr* 365. *Sem hrs:* 2½ *fall or* 3 *spring.*

El Engr 481. *Studies in Applied Electronics* 1 (1)
An introductory course in the applied aspects of electronics for non-electrical engineering majors. Course topics selected from such areas as stereo systems, television systems, aircraft electrical systems, Air Force communication systems. Lab. *Term project. Prereq: Course enrollment will be limited; cadets desiring to take this course must contact the department for approval prior to registration. Sem hrs:* 2½ *fall or* 3 *spring.*

El Engr 482. *Design of Logical Circuits and Systems* 1 (1)
Boolean algebra, number systems, switching circuits, logical circuit organization and minimization, and the higher logical organizations required for digital computation. *Final exam. Prereq: Grade of B or better in El Engr* 352 *or* 362. *Sem hrs:* 2½ *fall or* 3 *spring.*

El Engr 487. *Techniques of Analog/Hybrid Computation* 1 (1)
High speed computational techniques using analog computing elements under parallel synchronous logic control and/or digital control. A/D and D/A conversion systems. Error compensation and computational stabilization. Linear programming and non-linear optimization. Organization, demonstration, and operation of a fully hybrid computer system. *Term project. Prereq: El Engr* 453 *or department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

El Engr 495. *Special Topics* 1 (1)
Selected topics in electrical engineering. *Final project. Prereq: Department permission. Sem hrs and offering time determined by department (not more than* 3 *sem hrs).*

El Engr 499. *Independent Study* 1-2 (0)
Individual study and research in an engineering design topic approved by the department head. *Final paper and oral report. Sem hrs:* 2½ *to* 6 *fall or spring.*

El Engr 541. *Advanced Network Theory* 1 (1)
Computer analysis of linear, time-variable, and nonlinear circuits; analysis of n-ports; Manley-Rowe relations; synthesis of networks and n-ports; scattering concepts; positive and bounded-real matrices; topological methods; Hilbert transforms and linear vector spaces. *Final exam. Prereq: El Engr* 363. *Sem hrs:* 3 *spring.*

El Engr 561. *Advanced Applications of Physical Electronics* 1 (1)
Study of advanced semiconductor devices and representative circuits in which they are employed. Devices considered are those depending on the diffusion, drift, thermoelectric, photoelectric, electromechanical, electromagnetic, Zener breakdown, tunneling, and surface types of effects in semiconductor materials. *Final exam. Prereq: El Engr* 364. *Sem hrs:* 3 *spring.*

El Engr 571. *Electromagnetic Theory and Systems* 1 (1)
Study of advanced military electromagnetic systems. Topics in large scale radar systems, electronic warfare and penetration strategy are investigated. The interrelationship between operational concepts and requirements, and electromagnetic system design and development is emphasized. *Final project. Prereq: El Engr* 477. *Sem hrs:* 2½ *fall or* 3 *spring.*

English *(English)*

Offered by the Department of English

English 111. *Composition and Literature* 1 (1)
Introduction to rhetoric and literature with frequent practice in composition. *Final exam. Sem hrs:* 2½ *fall.*

English 112. *Composition and Literature* 1 (1)
Continuation of English 111. *Final exam. Prereq: English* 111. *Sem hrs:* 3 *spring.*

English 340. *English Novel* 1 (1)
Tutorial course in the reading of representative novels written in English. *Final exam. Prereq: English* 112. *Sem hrs:* 2½ *fall or* 3 *spring.*

English 352. *American Literature* 1 (1)
Reading of representative work of major American writers. *Final exam. Prereq: English* 112. *Sem hrs:* 2½ *fall or* 3 *spring.*

English 353. *Shakespeare* 1 (1)
Intensive study of several of Shakespeare's major plays. *Final exam. Prereq: English* 112. *Sem hrs:* 2½ *fall or* 3 *spring.*

English 360. *Classical Readings* 1 (1)
Tutorial course in the reading of Greek, Roman, and Northern European classics. *Final exam. Prereq: English* 112. *Sem hrs:* 2½ *fall or* 3 *spring.*

English 370. *Speech* 1 (2)
Instruction and practice in argumentation, debate, and persuasive speaking. *No final. Sem hrs:* 2½ *fall or* 3 *spring.*

English 406. *Western World Literature* 1 (1)
Detailed analysis of selected western world masterpieces from the Renaissance through the moderns. *Final exam. Prereq: English* 112. *Sem hrs:* 2½ *fall or* 3 *spring.*

English 430. *Technical Writing and Speech* 1 (1)
Intensive study of principles of reporting technical information in writing and speech. *Final report. Prereq: English* 112; *1/C or 2/C standing; Engineering and Basic Science majors. Sem hrs:* 2½ *fall or* 3 *spring.*

English 431. *English Literature* 1 (1)
Reading of representative work of major English writers. *Final exam. Prereq: English* 112. *Sem hrs:* 2½ *fall or* 3 *spring.*

English 441. *Contemporary Drama* 1 (1)
A study of about 15 modern American and European plays. *Final exam. Prereq: English* 112. *Sem hrs:* 2½ *fall or* 3 *spring.*

English 442. *Modern Literature* 1 (1)
A study of contemporary British, American, and continental literature with emphasis on the novel. *Final exam. Prereq: English* 112. *Sem hrs:* 2½ *fall or* 3 *spring.*

English 450. *Advanced Composition and Speech* 1 (1)
Practice in thesis writing, practical research, and public speaking. *Final report. Prereq: English* 112; *Humanities and Social Science majors. Sem hrs:* 2½ *fall or* 3 *spring.*

English 495. *Special Topics* 1 (1)
Selected topics in English. Fall 1972 offering: The Voice of the Blackman in American Literature; Spring 1973 offering: Satire — Then and Now. *Final exam. Prereq: Department permission. Sem hrs and offering time determined by department (not more than* 3 *sem hrs).*

English 499. *Independent Study* 1 (0)
Study and research in the field of literature or creative writing. Subject and meetings arranged with the instructor. *Final report. Prereq: Department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

Fine Arts *(Fine Art)*

Offered by the Department of Philosophy and Fine Arts

Fine Art 105. *Drum and Bugle Corps I* 0 (0)
Introduction to military music traditions and procedures. Instruction in performance techniques of various types of bugles and drums. Intensive rehearsal and drill in techniques of precision marching while playing. Participation in exhibition performances. Upon withdrawal or completion cadets will participate in squadron competitive athletics. *Pass/fail. No final. Prereq: Audition and department permission. Sem hrs:* 1 *fall.*

Fine Art 205. *Drum and Bugle Corps II* 0 (0)
Continuation of Fine Art 105. Assignment to section leadership for select individuals. Participation in exhibition performances. Upon withdrawal or completion cadets will participate in squadron competitive athletics. *Pass/fail. No final. Prereq: Department permission. Sem hrs:* 1 *fall.*

Fine Art 305. *Drum and Bugle Corps III* 0 (0)
Continuation of Fine Art 205. Assignment to section leadership and lower echelons of command. Instruction and participation in planning and preparation of public performances. Exercise of leadership in drilling and rehearsing lower classmen in corps techniques. Participation in exhibition performances. Upon withdrawal or completion cadets will participate in squadron competitive athletics. *Pass/fail. No final. Prereq: Department permission. Sem hrs:* 1 *fall.*

Fine Art 405. *Drum and Bugle Corps IV* 0 (0)
Continuation of Fine Art 305. Exercise of leadership in command of corps. Responsibility for planning, preparation and execution of all corps performances. Participation in exhibition performances. Upon withdrawal or completion cadets will participate in squadron competitive atheletics. *Pass/fail. No final. Prereq: Department permission. Sem hrs:* 1 *fall.*

Fine Art 451. *Introduction to the Arts* 1 (1)
Discussion and analysis of major art concepts, artists, and styles. Studio projects in painting, sculpture, or graphics. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring.*

Fine Art 458. *Music Appreciation* 1 (1)
A survey of principal forms and periods of Western music with representative works by major composers and brief introduction to music of American Indians, Africa, the Orient, Middle and Southeast Asia. Voluntary field trips to selected area concerts. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring.*

Fine Art 460. *Fine Arts Laboratory* 1 (2)
Introductory projects in design, graphics, painting, sculpture, and film. Media explored are graphics (woodcut and etching), painting (oils and synthetics), sculpture (wood, stone, bronze, and direct metal), and 16mm sound and color film. *No final. Prereq: Fine Art* 451 *or* 471. *Sem hrs:* 3 *spring.*

Fine Art 477. *American Art and Music* 1 (1)
Survey from the colonial period to the present. Considers interesting and uniquely American aspects of music and art, with reference to visual and aural communication, regional and national means of expressions, and the influence of American currents and philosophies on period or individual styles up to and including contemporary 20th Century artists and composers. *Final exam. Sem hrs:* 2½ *fall.*

Fine Art 499. *Independent Study* 1 (0)
Independent study in the field of art or music. Subject and meetings arranged with the instructor. *No final. Prereq: Department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

Foreign Languages *(Chinese, French, German, Japanese, Russian, and Spanish)*

Offered by the Department of Foreign Languages

For Lang 101: 1 (2)
Chinese 101 — *Elementary Chinese I*
French 101 — *Elementary French I*
German 101 — *Elementary German I*
Japanese 101 — *Elementary Japanese I*
Russian 101 — *Elementary Russian I*
Spanish 101 — *Elementary Spanish I*

Basic foreign language with emphasis on understanding and speaking. Inductive pattern drills; structural analysis. Language laboratory supplements classroom instruction. *Final exam. Sem hrs:* 2½ *fall.* (*See Supplementary Information*)

For Lang 102: 1 (2)
Chinese 102 — *Elementary Chinese II*
French 102 — *Elementary French II*
German 102 — *Elementary German II*
Japanese 102 — *Elementary Japanese II*
Russian 102 — *Elementary Russian II*
Spanish 102 — *Elementary Spanish II*

Continuation of For Lang 101. *Final exam. Prereq: For Lang* 101. *Sem hrs:* 3 *spring. No credit for For Lang* 101 *will be given unless For Lang* 102 *is also successfully completed.*

For Lang 151: 1 (2)
French 151 — *Accelerated Elementary French*
German 151 — *Accelerated Elementary German*
Russian 151 — *Accelerated Elementary Russian*
Spanish 151 — *Accelerated Elementary Spanish*

Basic foreign language with emphasis on comprehension and speaking. Inductive pattern drills; structural analysis. Students are chosen by the department on placement examination scores. Successful completion fulfills requirements for For Lang 101-102. *Final exam. Sem hrs:* 2½ *fall plus* 3 *sem hrs validation credit for For Lang* 102.

For Lang 253: 1 (1)
Chinese 253 — *Intermediate Chinese I*
French 253 — *Intermediate French I*
German 253 — *Intermediate German I*
Japanese 253 — *Intermediate Japanese I*
Russian 253 — *Intermediate Russian I*
Spanish 253 — *Intermediate Spanish I*

Continuation of essential elements of language structure. Conversational practice. Civilization and culture

of the country or countries concerned. Selected readings and practice in composition. *Final exam. Prereq: Grade of C or better in For Lang* 102 *or the equivalent. Sem hrs: 2½ fall or* 3 *spring.*

For Lang 254: 1 (1)
Chinese 254 — *Intermediate Chinese II*
French 254 — *Intermediate French II*
German 254 — *Intermediate German II*
Japanese 254 — *Intermediate Japanese II*
Russian 254 — *Intermediate Russian II*
Spanish 254 — *Intermediate Spanish II*

Continuation of For Lang 253. *Final exam. Prereq: For Lang* 253. *Sem hrs: 2½ fall or* 3 *spring.*

For Lang 365: 1 (1)
Chinese 365 — *Advanced Chinese I*
French 365 — *Advanced French I*
German 365 — *Advanced German I*
Japanese 365 — *Advanced Japanese I*
Russian 365 — *Advanced Russian I*
Spanish 365 — *Advanced Spanish I*

Advanced conversation and composition based on selected readings in civilization, culture, and contemporary issues of the country or countries concerned. Syntax analysis. *Final exam. Prereq: Grade of C or better in For Lang* 254 *or the equivalent. Sem hrs: 2½ fall or* 3 *spring.*

For Lang 376: 1 (1)
French 376 — *Contemporary French Literature*
German 376 — *Contemporary German Literature*
Russian 376 — *Contemporary Russian Literature*
Spanish 376 — *Contemporary Spanish Literature*

Covers important writers, their works, and influences on world literature. Each class conducted in the language. *Final exam. Prereq: For Lang* 254 *or the equqivalent or department permission. Sem hrs: 2½ fall or* 3 *spring.*

For Lang 450: 1 (1)
Chinese 450 — *Chinese Advanced Reading and Translation*
French 450 — *French Advanced Reading and Translation*
German 450 — *German Advanced Reading and Translation*
Russian 450 — *Russian Advanced Reading and Translation*
Spanish 450 — *Spanish Advanced Reading and Translation*

Reading and translation of foreign language scientific and social science texts. Course designed to develop a facility for using foreign language as a research tool. *Final exam. Prereq: For Lang* 254 *or the equivalent or department permission. Sem hrs:* 1½ *fall or* 2 *spring.*

For Lang 495. *Special Topics* 0-2 (1)
Selected topics in foreign languages. Spring 1973 offering: French AFA Preparatory Course-Phase I; Summer 1973 offering: French AFA Preparatory Course-Phase II. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department.*

For Lang 499: 1 (0)
Chinese 499 — *Independent Study in Chinese*
French 499 — *Independent Study in French*
German 499 — *Independent Study in German*
Japanese 499 — *Independent Study in Japanese*
Russian 499 — *Independent Study in Russian*
Spanish 499 — *Independent Study in Spanish*

Study in depth in an area mutually acceptable to an instructor and student. *Term paper. Prereq: Department permission. Sem hrs: 2½ fall or* 3 *spring.*

Supplementary Information

All cadets who have a background in one of the foreign languages offered at the Academy will be administered a placement examination in that language when they come to the Academy. Based on the results of that examination, a cadet may:

(1) receive validation credit for that language;

(2) be placed in the accelerated course of that language;

(3) take the normal elementary course sequence.

A cadet who completes an elementary language course and desires to enroll in another elementary language is required to obtain departmental approval.

French

(See Foreign Languages)

German

(See Foreign Languages)

Geography *(Geog)*

Offered by the Department of Geography

Geog. 120. *Introduction to Geography* 1 (1)
Principles of physical and cultural geography applied to social, economic and political patterns. Evaluations of regional associations evolving from the synthesis of man's natural and cultural environment. *Final exam. Sem hrs: 2½ fall or* 3 *spring.*

Geog. 280. *Physical Geography* 1 (1)
An analysis of the parameters governing the distribu-

tion of physical features of the earth. Study of form of the earth, atmosphere, climates, soils, vegetation, and landforms. *Final exam. Prereq: Geog* 120. *Sem hrs:* 2½ *fall.*

Geog 282. *Physical Geology* 1 (2)
Origin and development of minerals, rocks, and earth structures. Emphasizes mineral and rock identification and the evolution of landforms and their structures. Laboratory and required local field trips with Rocky Mountain region used as demonstration model. *Final exam. Prereq: Geog* 120. *Sem hrs:* 3 *spring.*

Geog. 340. *Cartography* 1 (1)
An introduction to concept and methods of map-making. Includes the history of cartography, map projections, design and compilation, reproduction processes, and mosaicking. Laboratory. *No final. Prereq: Geog* 120. *Sem hrs:* 2½ *fall.*

Geog 350. *Cultural Geography* 1 (1)
A geographic analysis of selected cultural problems such as those associated with urban settlement, demographic change, agricultural revolution, and industrial growth. Considers stages of political, economic and social development and human adaptation to the natural environment. *Final exam. Prereq: Geog* 120. *Sem hrs:* 3 *spring.*

Geog 360. *Climatology* 1 (1)
A study of world climatic patterns. Emphasis on synoptic and dynamic processes. Classification of climates based on Köppen and Thornthwaite systems with introduction to other systems. Field trip required. *Final exam. Prereq: Geog* 120. *Sem hrs:* 3 *spring.*

Geog 370. *Political Geography* 1 (1)
Analysis of the spatial structure and processes of political systems at the level of the community, within national systems, and among nations. Examines geographic problems and processes of politically organized space including such topics as development, revolution, nationalism, separatism, and problems of the ecological environment. *Final exam. Prereq: Geog* 120. *Sem hrs:* 3 *spring.*

Geog 372. *Economic Geography* 1 (1)
Location and organization of world's major resources and associated production, distribution, and consumption patterns. Special attention to contemporary industrial and commercial development. Selected case studies on regional development. Field trips required. *Final exam. Prereq: Geog* 120. *Sem hrs:* 2½ *fall.*

Geog 381. *Geodesy* 1 (1)
Geodetic parameters, theory, and techniques. Emphasizes fundamentals for precise location of points on earth's surface. Field trips to ACIC, St. Louis, Mo., and 1st Geodetic Survey Sq., Francis E. Warren AFB, Wyo., are required. *Final report. Prereq: Geog* 120; *completion of any core math sequence. Sem hrs:* 3 *spring.*

Geog. 471. *Western Europe and the Mediterranean* 1 (1)
Geographical analysis of the physical, cultural, economic, and political aspects of the countries of Western Europe. Special attention to regional distribution of resources, agricultural production, industrial power, and international trade. The role and effects of such regional economic or political groupings as the Common Market. *Final exam. Prereq: Geog* 120. *Sem hrs:* 2½ *fall.*

Geog 472. *USSR and Eastern Europe* 1 (1)
Geographic base of the Soviet Union and countries of Eastern Europe. Investigates each nation's physical and cultural environment with respect to settlement, agricultural and industrial resources, economic structure, and urbanization. Emphasizes geographical aspects of contemporary agricultural and industrial developments. *Final exam. Prereq: Geog* 120. *Sem hrs:* 3 *spring.*

Geog 473. *The Far East* 1 (1)
Physical, economic, and cultural aspects of the Far East with emphasis on Southeast Asia's and China's geographic bases, as well as their historical evolution as geographic regions. Utilizing underdeveloped Far Eastern countries as models, nation building and counterinsurgency within newly emerging areas and the resultant changing geographies are examined. *Final exam. Prereq: Geog* 120. *Sem hrs:* 2½ *fall.*

Geog 474. *Latin America* 1 (1)
Geographic analysis of the physical, cultural, economic, and political interrelations of the nations of Latin America. Considers the regional distribution of resources, agricultural production, industrial strength, and settlement patterns. Emphasizes the diversity of developmental problems. *Final exam. Prereq: Geog* 120. *Sem hrs:* 3 *spring.*

Geog 491. *Seminar in the Basis of Geographic Thought* 1 (1)
Examines the development of geographic thought to the present time. Investigates the philosophies of the different schools of geography and analyzes the effects of new theoretical approaches on the current discipline. Field trips required. *Final exam. Prereq: Geog* 350 *or department permission. Sem hrs:* 2½ *fall.*

Geog 492. *Seminar in Design of Geographic Research* 1 (1)
Problem solving and research design in geography with emphasis on theoretical context, problem identification, and evaluation of adequacy of solutions. Includes theory building, hypothesis formulation and testing, quantitative techniques, and computer exercises. Field trips required. *Final report. Prereq: Geog* 491 *or* 591. *Sem hrs:* 3 *spring.*

Geog 495. *Special Topics* 1 (1)
Selected topics in geography. Field trips required dependent upon topics. Fall 1972 offering: Interpreting the Earth through Space Age Photography; Spring

1973 offering: Historical Geography of the United States. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department (not more than 3 sem hrs).*

Geog 499. *Independent Study* 1-2 (0)
Independent research and study in a specific area of geography conducted on a tutorial basis. *Term paper. Prereq: 1/C standing; department permission. Sem hrs: 2 to 5 fall or spring.*

Geog. 591. *Seminar in the Basis of Geographic Thought* 1 (1)
Examines the development of geographic thought to the present time. Investigates the philosophies of the different schools of geography and analyzes the effects of new theoretical approaches on the current discipline. Field trips required. Research paper. *Final exam. Prereq: Geog* 350; *1/C standing and department permission. Sem hrs:* 2½ *fall.*

Geog 592. *Seminar in Design of Geographic Research* 1 (1)
Problem solving and research design in geography with emphasis on theoretical context, problem identification, and evaluation of adequacy of solutions. Includes theory building, hypothesis formulation and testing, quantitative techniques, and computer exercises. Field trip required. Research paper. *Final report. Prereq: Geog* 591. *Sem hrs:* 3 *spring.*

Geog 599. *Independent Study, Graduate Level* 1 (0)
Independent research and study in depth in a specific area of geography conducted on a tutorial basis. *Term Paper. Prereq: 1/C standing; department permission. Sem hrs:* 3 *spring.*

History *(History)*

Offered by the Department of History

History 200. *History of the United States* 1 (1)
Survey of United States history from the colonial era to the present. Emphasis political, social, economic, and cultural developments in a world context. *Final exam. Sem hrs:* 2½ *fall.*

History 201. *Europe and the World since 1500* 1 (1)
Main trends in world history from 1500 to the present. Emphasizes the emergence of Western Europe to a position of world dominance through the Nineteenth Century. Introduction to predominant characteristics of Latin American, Middle Eastern, African, and Far Eastern civilizations. *Final exam. Sem hrs:* 2½ *fall.*

History 202. *Modern Warfare and Society* 1 (1)
Survey of the complex relationship between warfare and society from the American and French revolutions through the Cuban missile crisis and the Vietnam war. The role of the military leader, the impact of technology, the evolution of military doctrine, and the development of airpower are related to the changing character of warfare. *Final exam. Prereq: History* 201 *in preceding semester. Sem hrs:* 3 *spring.*

History 300. *The United States in a Changing World: Critical Issues* 1 (1)
Examines the historical development of critical issues confronting American society today including the role of minorities in American life, the impact of industrialism, expansion of the role of the federal government, the evolution of the city, and America's response to crucial world problems. *Final exam. Prereq: History* 201. *Sem hrs:* 2½ *fall or* 3 *spring.*

History 330. *Historical Methods* 1 (1)
Methods of historical research, analysis, evaluation, and writing. *Term paper. Prereq: History major or department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

History 332. *United States Diplomatic History* 1 (1)
Emphasizes emergence of the United States as a world power and the associated problems. Examination of diplomatic policies and their objectives and the novel factors which have influenced the conduct of diplomacy. *Final exam. Prereq: History* 201. *Sem hrs:* 2½ *fall.*

History 341. *History of Latin America* 1 (1)
The discovery, conquest, and growth of Spanish and Portuguese America. Emphasizes political, social, economic, and cultural institutions since the wars of independence with particular stress on Twentieth Century problems. *Final exam. Prereq: History* 201. *Sem hrs:* 3 *spring.*

History 343. *History of the Far East* 1 (1)
Modern history of East Asia with emphasis on China and Japan. The fundamental cultural developments; implications of contemporary tensions; the political, social, and economic results of Nineteenth and Twentieth Century relationships with Western powers. *Final exam. Prereq: History* 201. *Sem hrs:* 3 *spring.*

History 345. *Modern European History* 1 (1)
From the French Revolution to the mid-Twentieth Century. Emphasizes the backgrounds and origins of the First and Second World Wars. Attention to such personalities as Bismarck, Kaiser Wilhelm II, Mussolini, and Hitler. *Final exam. Prereq: History* 201. *Sem hrs:* 2½ *fall.*

History 346. *History of Russia* 1 (1)
Survey of Russian domestic and foreign affairs from the Ninth Century to the present Soviet regime. Emphasis on political, social, economic, and cultural developments since 1801. *Final exam. Prereq: History* 201. *Sem hrs:* 3 *spring.*

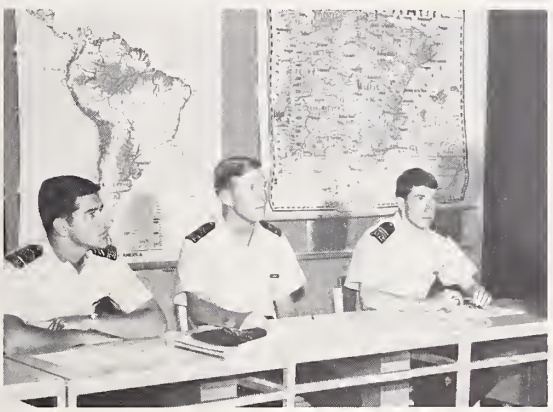
History 352. *History of Subsaharan Africa* 1 (1)
Survey of African history. Traditional African society and culture, early Sudanic empires, impact of Islam, the slave trade and its abolition, later African states, missionaries and trade, partition of Africa by Euro-

pean nations, African resistance movements, impact of two World Wars, African mass nationalism, the drive to independence, and the trials of statehood. *Final exam. Prereq: History* 201. *Sem hrs:* 3 *spring.*

History 357. *History of Military Thought* 1 (1)
Historical investigation of the ideas of selected major military thinkers ranging from Machiavelli to Maxwell Taylor and their impact. *Final exam. Prereq: History* 202 *or* 204. *Sem hrs:* 2½ *fall.*

History 372. *History of the Middle East* 1 (1)
The history of the Middle East with emphasis upon the ethnic, cultural and religious roots and growth of major problems in the modern period. Enmity between Jew and Arab, Arab aspirations, and Turkish ambivalence. Persian ambitions and the interests of the Great Powers serve as principal points of focus. *Final exam. Prereq: History* 201. *Sem hrs:* 3 *spring.*

History 382. *History of Science and Technology* 1 (1)
Historical investigation of the meaning and impact of the scientific revolution, the industrial revolution, and science and technology in the Western world. *Final exam. Prereq: History* 201. *Sem hrs:* 3 *spring.*



Hist. 438. *Western Institutions and Ideas* 1 (1)
Institutions and currents of thought from the early Middle Ages to the French Revolution of 1789 which have had a major influence on western history: Christianity, humanism, nationalism, the enlightenment, scientific method, capitalism, education, and the nation-state. *Final exam. Prereq: History* 201. *Sem hrs:* 3 *spring.*

History 463. *Unconventional Warfare* 1 (1)
Evolution, theory and practice of insurgent and revolutionary warfare throughout the world with special attention given to Southeast Asia. Unconventional warfare studied in terms of historical perspective, major philosophies involved and actual insurgencies. Examination of counterinsurgency operations in various areas and circumstances. Taught in conjunction with the Geography and Political Science departments. *Final exam. Prereq: History* 202 *or* 204. *Sem hrs:* 3 *spring.*

History 471. *Air Power and Modern Warfare* 1 (1)
The evolution of air warfare against a background of military affairs during the Twentieth Century. Air power viewed as the central development of modern war. *Final exam. Prereq: History* 202 *or* 204. *Sem hrs:* 2½ *fall.*

History 479. *American Institutions and Ideas* 1 (1)
Historical investigation of the development of American thought, attitudes, and institutions from the colonial period to the present. *Final exam. Prereq: History* 101 *or* 201. *Sem hrs:* 2½ *fall.*

History 481. *A History of Minorities* 1 (1)
Course is designed to provide an understanding and a background in treatment of minorities in the United States. Covers the various racial, religious, political, intellectual, and social minorities to indicate their relationship to American society. Emphasis is on the development of prejudice, problems of assimilation, and treatment of Blacks. *Final exam and final report. Prereq:* 3/*C standing. Sem hrs:* 2½ *fall.*

History 495. *Special Topics* 1 (1)
Selected topics in history. Fall 1972 offering: The Military in Society; Spring 1973 offering: Revolutions in Modern History. *Final exam and final report. Prereq: History* 201. *Sem hrs and offering time determined by department (not more than* 3 *sem hrs).*

History 499. *Independent Study* 1 (0)
Reading and research in any recognized area of historical study. Areas selected by instructor depend on student interest. *Term paper. Prereq: History major or department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

History 553. *Colloquium: Diplomatic History* 1 (2)
A reading seminar in the diplomatic history of either the United States or Europe depending on the cadet's area of concentration. Acquaints the cadet with major secondary works relating to the questions of military leadership and professionalism, preparedness, security, economics and technology. *Final exam and final report. Prereq: Department permission. Sem hrs:* 3 *fall.*

History 562. *Colloquium: Military History of the United States* 1 (2)
A reading seminar which examines the interaction of U.S. social and military ideas and institutions from the American Revolution to the present. Acquaints the cadet with major secondary works relating to the questions of military leadership and professionalism, preparedness, security, economics and technology. *Final exam and final report. Prereq: Department permission. Sem hrs:* 3 *spring.*

History 564. *Colloquium: Area Military History* 1 (2)
A reading seminar in military history of the area chosen by the cadet for concentration. Areas include Western Europe, the Far East, Latin America, and

Russia. Provides a critical analysis of major secondary works relating to the reciprocal influence of military and social ideas and institutions. *Final exam and final report. Prereq: Department permission. Sem hrs:* 3 *fall.*

Humanities *(Hum)*

Offered by the Department of Foreign Languages

Hum 461. *Russian Literature* 1 (1)
A study of representative Russian authors (such as Pushkin, Turgenev, Dostoevsky, and Tolstoy) who have helped form the cultural heritage and shape the national character of the Russian people. *Final exam. Sem hrs:* 2½ *fall.*

Hum 463. *Far Eastern Literature* 1 (1)
A historical survey and analysis of major literary works of the Far East with emphasis on China and Japan. *Final exam. Sem hrs:* 2½ *fall.*

Instructional Technology *(Inst Tch)*

Offered by the Directorate of Instructional Technology

Inst Tch 101. *Academic Skills* 0 (1)
Organization of study time, note taking, study methods, preparing for examinations, and listening skills. Accelerated reading skills to include rate and comprehension, surveying, and planning purpose. *Final exam. Sem hrs: none fall.*

Inst Tch 102. *Basic Typing* 0 (0)
Basic typing limited to skills needed for theme, report, and military/personal correspondence typing. *No final. Sem hrs: none fall.*

Japanese

(See Foreign Languages)

Law *(Law)*

Offered by the Department of Law

Law 210. *An Introduction to Law* 1 (1)
An introduction to the substance and administration of law, including the judicial process, legal reasoning and terminology, and the principles of contracts, property and torts. In the spring semester, First Amendment rights are also studied. *Final exam. Prereq: 3/C or 2/C standing; concurrent enrollment in Philos* 210 *(for scheduling). Must be completed prior to a cadet's sixth semester. Sem hrs:* 1½ *fall or* 2 *spring.*

Law 400. *Law for Commanders* 1 (1)
A survey of the principles of public and private law which an officer may encounter in his official and personal capacities, including crimes, evidence, administrative law, persons, income taxation, personal estate planning and, in the spring semester, First Amendment rights. *Final exam. Prereq: 1/C standing; cadets enrolled in the fall semester must have completed Law* 210 *in a spring semester, and cadets enrolled in the spring semester must have completed Law* 210 *in a fall semester. Sem hrs:* 2½ *fall or* 3 *spring.*

Law 451. *American Constitutional Law* 1 (1)
An inquiry into legal problems which arise when constitutionally divided power is allocated to separate elements of government. Special attention is given to the judicial branch as arbiter in determining the limits on national and state power, in protecting the individual against governmental activity which offends the Bill of Rights and other constitutional guarantees, and in securing civil rights. *Final exam. Prereq: Law* 210; *Pol Sci* 211. *Sem hrs:* 3 *spring.*

Law 461. *International Law* 1 (1)
The role of public international law in the decision-making processes of sovereign nations. Topics include international agreements, the role of the United Nations and other international organizations, nationality, jurisdiction, rights and duties on the seas, continental shelf, air and space, sanctions and force short of war, civil war and intervention, war crimes, peacekeeping. *Final exam. Prereq: Law* 210; *completed or enrolled in Pol Sci* 212. *Sem hrs:* 2½ *fall.*

Law 462. *Government Contract Law* 1 (1)
Comprehensive study of government contract law with emphasis given to basic legal principles, procurement policy, methods of procurement, types of contracts, contract clauses, taxation, modification, disputes, termination, standards of conduct, conflicts of interest and dual compensation. *Final exam. Prereq: Law* 210. *Sem hrs:* 3 *spring.*

Law 495. *Special Topics* 1 (1)
Selected topics in law. A seminar in the legal implications of contemporary social, economic and political problems. *Final report. Prereq: 1/C standing and departmental permission. Limited enrollment. Sem hrs and offering time determined by department (not more than* 3 *semester hours). Sem hrs:* 2½ *fall or* 3 *spring.*

Life Science *(Life Sci)*

Offered by the Department of Life and Behavioral Sciences

Life Science 210. *Human Physiology* 1 (2)
Classroom and laboratory studies in the basic physiologic function of man's body systems. Emphasis is on responses of the human organism as it reacts to stresses of various environments including space, pollution, nutrition, fatigue, subsonic or supersonic flight and certain other aerodynamic stresses that alter normal physiology. Physiologic training is provided to prepare cadets for hypobaric chamber flights. One field trip to Lowry AFB. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring.*

Life Sci 263. *Introduction to Life Sciences* 1 (2)
Didactic and practical laboratory studies of the prob-

lems of life sciences. Prepares the student for advanced studies in this field. Emphasis placed on structure, physiology, natural history, and evolution of living organisms. *Final exam. Prereq: Life Sci* 210. *Sem hrs:* 3 *fall or* 3½ *spring.*

Life Sci 280. *The Fundamentals of Ecology* 1 (1)
Ecology, its scope and relation to other sciences. Studies include species and population interactions, ecosystems, tropic structure within ecosystems, biomes, and environmental threats to man. *Final exam. Prereq: Life Sci* 210. *Sem hrs:* 2½ *fall or* 3 *spring.*

Life Sci 333. *Environmental Physiology* 1 (1)
The problems of physiological adaptation by man and other living organisms to natural environmental stresses and artificial (space) environments. *Final report. Prereq: Life Sci* 210. *Sem hrs:* 2½ *fall or* 3 *spring.*

Life Sci 363. *Genetics* 1 (1)
Study of the laws of inheritance and their application to man. Interrelationships of hereditary and environmental effects on man's growth and development. *Final exam. Prereq: Life Sci* 210. *Sem hrs:* 2½ *fall or* 3 *spring.*

Life Sci 373. *Bio-Organic Molecular Processes I* 1 (1)
A study of carbon-containing compounds with emphasis on structure, nomenclature, physical and chemical properties, synthetic schemes and reaction mechanisms. Simple hydrocarbons and oxygen and nitrogen-containing compounds are considered in-depth as the basic units of complex biological molecules. *Final exam. Prereq: Chem* 102, 122, *or* 151; *or department permission. Sem hrs:* 3 *fall.*

Life Sci 374. *Bio-Organic Molecular Processes II* 1 (1)
Continuation of Life Sci 373. Includes a study of amino acids, peptides, proteins, enzymes, nucleic acids, carbohydrates and lipids. General metabolism, enzymology, bioenergetics, water and acid-base balance, and blood and urine composition in health and disease are also considered. *Final exam. Prereq: Life Sci* 373; *department permission. Sem hrs:* 3½ *spring.*

Life Sci 375. *Laboratory Techniques in Molecular Processes I* 1 (2)
Experiments emphasizing chemical and instrumental techniques for studying simple organic molecules. Procedures include chemical qualitative analysis, refractometry, crystallization, melting point determinations, chromatography and spectroscopy. Reaction types studied include displacement, elimination, addition, oxidation and reduction. Taken concurrently with Life Sci 373. *No final. Prereq: Chem* 102, 122, *or* 151; *department permission. Sem hrs:* 2 *fall.*

Life Sci 376. *Laboratory Techniques in Molecular Processes II* 1 (2)
Experiments dealing with the isolation, properties, and functions of amino acids, proteins, enzymes, nucleic acids, carbohydrates and lipids. Techniques include wet chemical procedures, titrimetry, electrophoresis, venipuncture, blood, urine, and gastric analyses. Taken concurrently with Life Sci 374. *No final. Prereq: Life Sci* 375. *Sem hrs:* 2½ *spring.*

Life Sci 431. *Microbiology I* 1 (2)
Lecture and practical laboratory studies of tissues with special emphasis on system and organ identification by staining techniques and microscopic identification. *Final exam. Prereq: Life Sci* 263; *department permission. Sem hrs:* 3 *fall.*

Life Sci 432. *Microbiology II* 1 (2)
Lecture and laboratory studies of bacteria, viruses and fungi common to our environment. Systematic identification and physiology of microbial species are emphasized. *Final exam. Prereq: Life Sci* 431 *or department permission. Sem hrs:* 3½ *spring.*

Life Sci 444. *Radiation Biology and Biotechnology* 1 (2)
Lecture and laboratory studies of the interaction of electromagnetic and particulate radiation with living systems; special emphasis is placed on energy absorption, detection and control. The application of electromagnetic radiation, lasers, the Doppler effect, ultrasound, and electron microscopy are presented with reference to problems of interest to the Air Force. *Final report. Prereq: Life Sci major or department permission. Sem hrs:* 3 *fall or* 3½ *spring.*

Life Sci 452. *Space Physiology* 1 (1)
Biosciences and biotechnology as they apply to bioastronautics. Emphasizes biological effects of the space environment. *Final report. Prereq: Life Sci* 210, *with Physics* 370 *desirable. Sem hrs:* 2½ *fall or* 3 *spring.*

Life Sci 460. *Molecular Biology* 1 (1)
A study of the macro and ultrastructure of the cell as it relates to function. Particular attention placed on cellular control mechanism, cellular thermodynamics, intermediary metabolism and macromolecular synthesis. *Final exam. Prereq: Life Sci* 374. *Sem hrs:* 2½ *fall or* 3 *spring.*

Life Sci 461. *Developmental Anatomy I* 2 (3)
Classroom and laboratory study of embryonic development of various vertebrate animals. Detailed study of the fate and function of germ cell layers. *Final exam. Prereq:* 1/*C standing; Life Sci* 263; *department permission. Sem hrs:* 5 *fall.*

Life Sci 462. *Developmental Anatomy II* 2 (3)
Classroom and laboratory study of the comparative anatomy of vertebrate animals. Elements of classification and similarities of function. *Final exam. Prereq:* 1/*C standing; Life Sci* 461; *department permission. Sem hrs:* 6 *spring.*

Life Sci 465. *Functional Anatomy I* 1 (2)
Lecture and laboratory studies of detailed human anatomy including basic histology of various tissues of the mammal, embryological origins of tissue layers, and advanced physiology of selected topics. *Final exam. Prereq: Life Sci* 263. *Sem hrs:* 3 *fall.*

Life Sci. 466. *Functional Anatomy II* 1 (2)
In-depth lecture and laboratory studies of the physiology of organ systems with special emphasis on endocrinology, cardiovascular, respiratory and gastrointestinal physiology. *Final exam. Prereq: Life Sci* 465. *Sem hrs:* 3½ *spring.*

Life Sci 495. *Special Topics* 1 (1)
Selected topics in life sciences. Fall 1972 offering: Parasitology; Spring 1963 offering: Current Topics in Medical Physiology. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department (not more than* 3 *sem hrs).*

Life Sci 499. *Independent Study* 1-2 (0)
Individual research under the direction of a faculty member. Emphasizes use of laboratory facilities. *No final. Prereq: Life Sci* 263; *department permission. Sem hrs:* 2 *to* 5 *fall or spring.*

Management *(Mgt)*

Offered by the Department of Economics and Management

Mgt 330. *Financial Accounting* 1 (1)
Fundamental accounting concepts and techniques necessary for administration of an organization. Includes analysis of transactions, classifications and recording of data, amortization of assets, treatment of taxes, and other elements of an accounting system for the measurement of operating results and financial condition. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring.*

Mgt 331. *Statistical Decision Methods* 1 (1)
Analysis of data, introduction to probability theory, probability distributions, statistical inference, hypothesis testing, sample survey methods, index numbers, and decision making under uncertainty with emphasis on cost applications. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring.*

Mgt 332. *Managerial Accounting* 1 (1)
Internal accounting controls and reports, control of decentralized operations, basic cost accounting, flow of funds analysis, budgeting, introduction to cost accounting, and use of quantitative techniques to aid decision making. Course concludes with a competitive game that provides an opportunity to apply managerial accounting in a simulated business situation. *No final. Prereq: Mgt* 330. *Sem hrs:* 2½ *fall or* 3 *spring.*

Mgt 334. *Organizational Behavior: Theory* 1 (1)
Theories of management and organization are developed and compared with emphasis on organizational functions supported and managerial techniques employed. Aspects of motivation, communication, executive leadership and development, decision making and administrative applications are given specific attention. A synthesis of procedures for individual acquisition and use of managerial skills is developed. Exercises are employed to permit each student to assess his current skills and to reveal areas of needed additional development. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring.*

Mgt 339. *Introduction to Management Science* 1 (1)
Discussion of management of production systems in the areas of business and defense. Major areas of study are the design, operation and control of production systems. Some of the management techniques used are simulation, PERT, CPM, and statistical quality control. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring.*

Mgt 360. *Quantitative Decision Methods* 1 (1)
Decision theory, model building, and multiple regression analysis with special emphasis on applications to defense management decisions. *Final exam. Prereq: Math* 232 *or Mgt* 331. *Sem hrs:* 2½ *fall or* 3 *spring.*

Mgt 363. *Industrial Relations* 1 (1)
Presents the origin and development of the U.S. industrial relations system with emphasis on the legal, political, and psychosocial dimensions as dynamic processes. Includes an introduction to collective bargaining and an analysis of contemporary labor issues. Examines the cultivation of labor-management relations in the federal service with implications for the military manager. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring.*

Mgt 435. *Managerial Economics* 1 (1)
Integration of the analytical concepts of price theory, statistics, and operations analysis. Case study demon-

stration of these concepts to problems of management in situations of decision making. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring.*

Mgt 437. *Managerial Finance* 1 (1)
Techniques of financial statement analysis; management and control of assets; various concepts of capital budgeting; internal and external sources of funds; and the study of capital structures of the firm. *Final exam. Prereq: Mgt* 330. *Sem hrs:* 2½ *fall.*

Mgt 460. *Operations Analysis I* 1 (1)
Methods of operations analysis including inventory models, linear programming, queing theory, replacement models, and reliability. *Final exam. Prereq: Mgt* 331 *and* 360. *Sem. hrs:* 2½ *fall or* 3 *spring.*

Mgt 462. *Operations Analysis II* 1 (1)
Sensitivity analysis methods to include sensitivity analysis of inventory models, equipment replacement models, and parametric programming of linear programming models. Dynamic programming. *Final exam. Prereq: Mgt* 460. *Sem hrs:* 3 *spring.*

Mgt. 464. *Organizational Behavior: Practice* 1 (1)
Organizational behavior studied in terms of practical applications of theory to exercise situations. Cadets required to have or acquire managerial skills and techniques. Cadet teams are jointly responsible for resolution of internal and external managerial challenges in organization, direction, communication, control, appraisal, decision making, and evaluation. Exercises are conducted at the individual, team and section participation levels. Techniques include team-task training, group dynamics, exercises, critical incidents, role playing, and a data-bank exercise. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring.*

Mgt 482. *Investment Analysis* 1 (1)
Life insurance and investment media including bonds, preferred stock, common stock, mutual funds, commodities, and real estate. The characteristics, methods of analysis, and investment merits of each are studied. *Final exam. Prereq: Econ* 212. *Sem hrs:* 2½ *fall or* 3 *spring.*

Mgt 485. *Management of Systems Development and Acquisition* 1 (1)
Discussion of management problems inherent in development and acquisition of large, complex systems and the buyer-seller relationships of government agencies and their industrial contractors. Major areas of study include: the requirements process, defense contracting procedures, management and control of large programs, and marketing characteristics of the defense industry. Case studies of recent weapon systems programs plus a simulation exercise of a new weapons system used to provide the setting for class discussions. *Final exam. Prereq:* 1/*C standing or department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

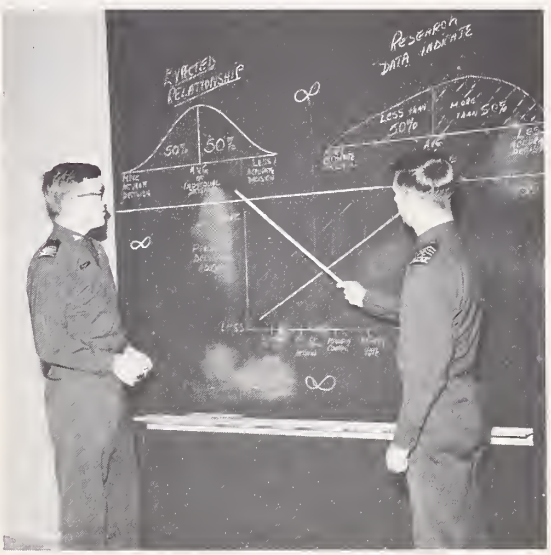
Mgt 495. *Special Topics* 1 (1)
Selected topics in management. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department* (*not more than* 3 *sem hrs*).

Mgt 499. *Independent Study* 1-2 (0)
Tutorial investigation of a specific area of management. *No final. Sem hrs:* 2 *to* 5 *fall or spring.*

Mgt 534. *Seminar in Logistic Management* 1 (2)
Application of quantitative techniques to logistics management including topics such as inventory and production control methods, forecasting methods, logistics simulation, and allocation techniques. *Final exam. Prereq: Mgt* 460 *or department permission. Sem hrs:* 3 *spring.*

Mgt 536. *Seminar in Management Theory and Analysis* 1 (2)
Evolution of management theory is reviewed and related to current developments in the management field. An in-depth study is made of the planning and control functions of management in industry and government, including the role of management information systems. *Final exam. Prereq:* 1/*C standing. Sem hrs:* 3 *spring.*

Mgt 544. *Senior Seminar in Organizational Theory* 1 (2)
Broad spectrum of subject matter relating to organizations with emphasis on applied aspects as presented by guest speakers. Both organizational structures and processes are examined. Special consideration given to current studies in USAF organizational planning. *Final exam. Prereq:* 1/*C standing. Sem hrs:* 3 *spring.*



Mathematics *(Math)*

Offered by the Department of Mathematics

Math 100. *College Algebra and Trigonometry* 1 (0)
Validation or transfer credit only. 0 to 6 semester hours of validation or transfer credit to be awarded

upon successful completion of the equivalent of core mathematics requirements.

Math 104. *Remedial Core Mathematics I* 2 (2)
Algebra and trigonometry; introduction to calculus; analytic geometry; differentiation integration. *Final exam. Prereq: D or F in Math* 111 *in preceding semester or department recommendation. Sem hrs:* 6 *spring or* 3½ *summer.*

Math 111. *Basic Core Mathematics I* 2 (2)
Algebra and trigonometry; introduction to calculus; differentiation. *Final exam. Sem hrs:* 5 *fall.*

Math 112. *Basic Core Mathematics. II* 2 (2)
Differentiation, integration; analytic geometry; vectors. *Final exam. Prereq: Math* 111 *in preceding semester or department permission. Sem hrs:* 6 *spring.*

Math 151. *Intermediate Core Mathematics I* 2 (2)
Introduction to calculus; differentiation; integration; analytic geometry. *Final exam. Sem hrs:* 5 *fall.*

Math 152. *Intermediate Core Mathematics II* 1 (1)
Integration; analytic geometry; vectors. *Final exam. Prereq: Math* 151 *in preceding semester. Sem hrs:* 3 *spring.*

Math 191. *Advanced Core Mathematics* 2 (2)
Integration; analytic geometry; vectors; infinite series; partial differentiation; multiple integration introduction to probability. *Final exam. Sem hrs:* 5 *fall.*

Math. 210. *Remedial Core Mathematics II* 2 (2)
Integration analytic geometry; vectors; infinite series; partial differentiation; multiple integration; introduction to probalility. *Final exam. Prereq: Math* 104 *in preceding semester or department recommendation. Sem hrs:* 5 *fall.*

Math 211. *Core Mathematics III* 1 (1)
Infinite series partial differentiation; multiple integration; introduction to probability. *Final exam. Prereq: Math* 112 *or* 152 *in preceding semester. Sem hrs:* 2½ *fall.*

Math 212. *Core Mathematics IV* 1 (1)
Matrix algebra; differential equations; applications of basic mathematics. *Final exam. Prereq: Math* 191 *or Math* 210 *or Math* 211 *in preceding semester. Sem hrs:* 2½ *fall or* 3 *spring.*

Math 232. *Probability and Statistics* 1 (1)
Basic topics in probability and statistics. *Final exam. Prereq: Math* 191 *or* 210 *or* 211 *or completion of any core math sequence. Sem hrs:* 3 *spring.*

Math 341. *Introductory Numerical Analysis* 1 (1)
Error analysis; approximation theory; solutions to differential equations; curve fitting techniques; computer laboratory exercises. *Final exam. Prereq: Completion of any core math sequence; Comp Sci* 200. *Sem hrs:* 2½ *fall.*

Math 351. *Applied Differential Equations* 1 (1)
Ordinary differential equations; orthogonal functions; Fourier analysis; partial differential equations; boundary value problems. *Final exam. Prereq: Completion of any core math sequence. Sem hrs:* 2½ *fall or* 3 *spring.*

Math. 352. *Applied Vector Analysis* 1 (1)
Gradient, divergence, curl; integral theorems of Stokes and Gauss; introduction to complex variables. *Final exam. Prereq: Math* 191 *or* 210. *Sem hrs:* 2½ *fall or* 3 *spring.*

Math 357. *Probability* 1 (1)
Essentials of modern probability and random variables; discrete and continuous random variables and their distributions; characterizations of random variables; derived distributions; sampling distributions; the central limit theorem and the law of large numbers. *Final exam. Prereq: Completion of any core math sequence. Sem hrs:* 2½ *fall.*

Math 358. *Statistics* 1 (1)
Common techniques of statistical inference; probability distributions used in statistics; hypothesis testing, emphasizing both Type I and Type II errors, and including experimental design considerations; point and confidence interval estimation; curve fitting and regression analysis. *Final exam. Prereq: Math* 357. *Sem hrs:* 3 *spring.*

Math 360. *Linear Algebra* 1 (1)
Vector spaces, linear transformations, matrices; linear equations and determinants; equivalence relations and metric concepts. *Final exam. Prereq: Completion of any core math sequence or concurrent enrollment in Math* 212. *Sem hrs:* 2½ *fall or* 3 *spring.*

Math 365. *Modern Algebra* 1 (1)
Set theory; number theory; composition of functions; group theory; ring theory. *Final exam. Prereq: Math* 191 *or* 210 *or* 211 *or completion of any core math sequence. Sem hrs:* 2½ *fall or* 3 *spring.*

Math 366. *Advanced Calculus I* 1 (1)
Theoretical study of concepts of calculus for functions of one variable. *Final exam. Prereq: Completion of any core math sequence. Sem hrs:* 2½ *fall.*

Math 367. *Advanced Calculus II* 1 (1)
Continuation of Math 366. Multivariable calculus. *Final exam. Prereq: Math* 360 *and* 366. *Sem hrs:* 2½ *fall.*

Math 368. *Intermediate Differential Equations* 1 (1)
In depth study of ordinary differential equations; series solutions; eigenvalue problems; orthogonal functions. Introduction to partial differential equations. *Final exam. Prereq: Math* 366 *or department permission. Sem hrs:* 3 *spring.*

Math 441. *Linear Programming* 1 (1)
Review of matrix algebra convex sets and linear inequalities; simplex algorithm, dual theory; network

flow; integer programming. *Final exam. Prereq: Math* 360. *Sem hrs:* 3 *spring.*

Math 442. *Game Theory and Decision Theory* 1 (1)
Fundamentals and applications of game theory and decision theory. *Final exam. Prereq: Completion of any core math sequence. Sem hrs:* 2½ *fall.*

Math 451. *Complex Variables* 1 (1)
Analytic functions; mapping; integrals; power series; residues and poles; applications. *Final exam. Prereq: Completion of any core math sequence. Sem hrs:* 3 *spring.*

Math 455. *Advanced Engineering Mathematics* 1 (1)
Applied partial differential equations; solutions of boundary value problems. Methods of solution include eigenfunction expansions, Green's functions, and integral transforms. *Final exam. Prereq: Math* 351 *or* 368. *Sem hrs:* 2½ *fall or* 3 *spring.*

Math 468. *Advanced Calculus III* 1 (1)
Theory of convergence; sequences and series of functions; uniform convergence; improper integrals; Fourier series. *Final exam. Prereq: Math* 366. *Sem hrs:* 3 *spring.*

Math 495. *Special Topics* 1 (1)
Selected advanced topics in mathematics. Fall 1972 offering: Introduction to Optimization; Spring 1973 offering: Introduction to point-set topology. *Final exam. Prereq: Department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

Math 499. *Independent Study and Research* 1 (0)
Individual study and/or research under the direction of a faculty member. *Oral midterm and final; term paper. Prereq: Department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

Math 542. *Mathematical Analysis* 1 (1)
Real number system; metric spaces; series; continuity; differentiation; Riemann-Stieltjes integral, series of functions. *Final exam. Prereq: A Grade of B or better in Math* 367. *Sem hrs:* 3 *spring.*

Math 546. *Advanced Probability* 1 (1)
Markov chains and other stochastic processes. *Final exam. Prereq: Math* 357. *Sem hrs:* 3 *spring.*

Math 571. *Numerical Analysis* 1 (1)
Theory of polynomial approximations, interpolation theory, error analysis; theory of numerical quadratures, numerical solutions of differential equations; functional approximations; numerical methods in linear algebra; numerical solutions of non-linear equations; computer programming laboratory exercises. *Final exam. Prereq: Math* 341. *Sem hrs:* 3 *spring.*

Math 595. *Graduate Topics in Mathematics* 1 (1)
Special topics in mathematics at the graduate level; subject to be announced. *Final exam. Prereq: Department permission. Sem hrs:* 3 *spring. Spring* 1972 *offering: Advanced Topics in Optimization.*

Mechanics *(Mech)*

Offered by the Department of Engineering Mechanics

Mech 120. *Engineering Fundamentals* 1 (2)
Introduction to the basic principles of engineering. Includes fundamentals of problem synthesis and analysis with application of physical laws to the solution of basic problems encountered in the engineering sciences. Creative problems in introductory design and analysis included in the spring semester. *Final exam in fall. Final design problem in spring. Prereq: Math* 104 *or* 112; *must be completed prior to fourth semester. Sem hrs:* 2½ *fall or* 3 *spring.*

Mech 350. *Experimental Stress Analysis* 1 (2)
Introduction to experimental stress analysis, mechanical measurement techniques, and dynamic testing methods with emphasis on the relationship between basic mechanics theory and corresponding experiments. Topics include strain gages and optical methods for stress analysis, mechanical transducers, piezoelectric accelerometers, vibration testing and instrumentation, recording and data processing systems. Lab. *No final. Prereq: Mech* 362. *Sem hrs:* 3 *fall or spring.*

Mech 355. *Materials Science I* 1 (1)
Principles underlying the properties and behavior of materials. Atomic bonding, arrangements, and imperfections; phase relationships in one and multi-component systems; elasticity, plasticity and fracture; strengthening mechanisms; diffusion, chemical behavior and corrosion; applications of materials in aerospace systems. *Final exam. Prereq: Mech* 362. *Sem hrs:* 2½ *fall or* 3 *spring.*

Mech 356. *Materials Science II* 1 (2)
Metallurgical control of the properties of materials; the effects of microstructure; basic principles underlying the heat treatment of alloys and the transformation of phases. Elements of corrosion engineering. *Lab. Final exam. Prereq: Mech* 355. *Sem hrs:* 3 *spring.*

Mech 361. *Vector Engineering Mechanics* 1 (2)
Statics including resultants, equilibrium, and friction. Kinematics including absolute and relative motion. Kinetics including force-mass-acceleration, work-energy, impulse-momentum and vibrations. Vector methods of solution are emphasized where applicable. Lab. *Final exam. Prereq: Mech* 120; *Math* 112 *or* 152 *or* 210 *or department permission. Sem hrs:* 3 *fall or spring.*

Mech 362. *Mechanics of Materials* 1 (2)
The stresses and deflections developed in materials as a result of centric, torsional, flexural, and combined loadings. Includes statically indeterminate beams and columns. Lab. *Final exam. Prereq: Mech* 120. *Sem hrs:* 3 *fall or spring.*

Mech 373. *Introduction to Aerospace Structures* 1 (1)
Statically determinate structures; theory and methods for solving statically indeterminate structures; beam bending and shear stresses, membrane stresses and column stability; introduction to practical aircraft stress analysis to include: stress analysis of special wing problems, cutouts, shear lag, swept and delta wings. *Final exam. Prereq: Mech* 362. *Sem hrs:* 2½ *fall.*

Mech 424. *Advanced Strength of Materials* 1 (1)
Analysis of stress and strain with emphasis on the relationship between stress, strain and deformation in structures and structural elements. Includes the theories of failure, bending of unsymmetrical cross sections, shear flow, torsion of beams of arbitrary cross-section and thin-walled closed and open section beams, beam columns, buckling of columns, membrane stresses in thin-walled shells of revolution, thick-walled cylinder theory and energy methods. *Final exam. Prereq: Mech* 355. *Sem hrs:* 2½ *fall or* 3 *spring.*

Mech 452. *Advanced Structural Mechanics* 2 (2)
Relationship between stress, strain, and deformation in structures and structural elements. Matrix analysis to analyze redundant structures. Includes failure theories, shear flow, unsymmetrical bending, curved beams, and column buckling. *Final exam. Prereq: Meeh* 362. *Sem hrs:* 5 *fall.*

Mech 453. *Aerospace Structures* 1 (1)
Energy methods of structural analysis; principle of stationary potential energy applied to the analysis of trusses and frames. Energy methods for the determination of structural element stiffness characteristics. Matrix structural analysis using the direct stiffness approach for the solution of structures composed of many elements. *Final exam. Prereq: Mech* 362. *Sem hrs:* 2½ *fall.*

Mech 454. *Intermediate Dynamics* 1 (1)
Study of three-dimensional kinematics, dynamics of particles and systems of particles. LaGrangian dynamics and dynamics of rigid bodies. *Final exam. Prereq: Meeh* 361; *Math* 351. *Sem hrs:* 2½ *fall.*

Mech 455. *Electronic Process in Materials* 1 (1)
Development of general electronic models of solid materials; electrical properties of conductors, insulators, and semiconductors. Introduction to x-ray theory and analysis methods. *Final exam. Prereq: Physics* 212. *Sem hrs:* 2½ *fall.*

Mech 456. *Mechanical Metallurgy* 1 (2)
Behavior of metals under simple and combined stress systems. Elements of elastic theory, plastic deformation, elementary dislocation theory, strengthening mechanisms, creep, fatigue and failure theories. Analysis of fracture mechanics and composite materials. *Final exam. Prereq: Meeh* 355 *and* 362 *or department permission. Sem hrs:* 2½ *fall.*

Mech 459. *Advanced Aerospace Materials* 1 (1)
Advanced and theoretical topics in the development of materials for aerospace systems. Examination of fundamental principles of thermodynamics and the diffusion process. Analysis of liquid and solid alloys, heterogeneous equilibria, phase diagrams, oxidation resistant and high temperature materials. *Final exam. Prereq: Mech* 355. *Sem hrs:* 3 *spring.*

Mech 464. *Engineering Design* 1 (2)
Application of principles of unified design in the study of aerospace structures, dynamics, mechanics of materials, and properties of materials. Study may be individual tutorial design with the permission of the department. *Final report. Prereq: At least two of the following courses or permission of the department: Mech* 350, 356, 452, 453, 454, 455, 456, 459, 472, 554 or 572. *Sem hrs:* 4 *fall or spring.*

Mech 472. *Intermediate Vibrations* 1 (1)
Free and forced linear vibrations of single and multi-degree of freedom systems. Exact and approximate analyses of linear vibrations of continuous bodies. *Final exam. Prereq: Math* 351; *Mech* 361 *or Physics* 355. *Sem hrs:* 3 *spring.*

Mech 480. *Advanced Topics in Mechanics or Materials Engineering* 1-2 (1)
Selected topics in engineering mechanics or materials engineering. *Final exam. Prereq: Specified when topic is announced. Sem hrs:* 2½ *to* 4 *fall or spring.*

Mech 495. *Special Topics* 1 (2)
Selected topics in mechanics. Fall 1972 and Spring 1973 offering: Studies in Applied Mechanics. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department (not more than* 3 *sem hrs).*

Mech 499. *Independent Study* 0-2 (0)
Individual study and research on a design topic established with the permission of the department head. *Final report. Sem hrs:* 1 *to* 5 *fall or spring.*

Mech 554. *Advanced Dynamics* 1 (1)
Study of three-dimensional kinematics, particle dynamics, dynamics of particle systems, LaGrangian dynamics. Hamilton's equations, and dynamics of rigid bodies. *Final exam. Prereq: Mech* 361; *Math* 351 *Sem hrs:* 2½ *fall or* 3 *spring.*

Mech 571. *Advanced Aerospace Structures* 1 (1)
A continuation of aerospace structures with emphasis on the finite element approach to the solution of problems in a continuum. Includes derivation of element stiffness of beams, plane stress/strain, and plate bending elements using assumed displacement functions. Computer solutions to continuous beam, large scale plane, and plate bending problems. *Final exam. Prereq: Meeh* 453. *Sem hrs:* 3 *spring.*

Mech 572. *Vibrations of Aerospace Structures* 1 (1)
Linear vibrations of single- and multi-degree of freedom systems including free and forced responses. Exact and approximate analyses of linear vibrations

of continuous bodies. Introduction to nonlinear oscillations of a single degree of freedom. *Final exam. Prereq: Math* 351, *Mech* 361 *or Physics* 355. *Sem hrs:* 2½ *fall or* 3 *spring.*

Mech 599. *Independent Study* 1-3 (0)
Independent study and research at the graduate level. Topic established with the department head. *Final report. Sem hrs:* 2 *to* 9 *fall or spring.*

Military Training *(Mil Tng)*

Offered by the Military Training Division of the Deputy Commandant for Military Instruction

Mil Tng 100. *Basic Cadet Training* 0 (0)
Transition from civilian to military life. Indoctrination in the overall Academy program, cadet regulations, the Honor Code, manual of arms drill, customs and courtesies, and other general military subjects. Introduction to basic Air Force weapons, firing course (rifle and pistol), field encampment, and orientation flights in T-33 aircraft. *Pass/fail. No final. Sem hrs:* 5 *summer.*

Mil Tng 115. *United States Air Force* 0 (2)
A study of the organization, mission and operation of the USAF, structured to give the cadet a basic understanding of the USAF's present posture and provide a background essential to later military and academic studies. *Final exam. Sem hr:* 1 *fall.*

Mil Tng 116. *U.S. Army, U.S. Navy, Allied and Communist Forces* 0 (2)
A basic introduction to the organization and capabilities of the U.S. Army and U.S. Navy. A survey of U.S. allies and Communist military force structures. *Final exam. Sem hr:* 1 *spring.*

Mil Tng 200. *Third Class Summer Training* 0 (0)
Three weeks' summer training in any of the following options:

Mil Tng 201 — Duty with an Air Force Unit *(Aerospace Orientation Program)*
Mil Tng 202 — Air Cruise Program *(Aircrew Indoctrination)*
Armnshp 451 — Glider Soaring, Private
Armnshp 452 — Basic Airborne *(U.S. Army — Fort Benning)*
Mil Tng 495 — Special Training Programs

Pass/fail. No final. Sem hrs: 2½ *summer.*

Mil Tng 210. *Survival, Evasion, Resistance and Escape Training (SERE)* 0 (0)
Three weeks' basic survival and evasion training, water survival training and prisoner compound, resistance and escape training. Completion satisfies USAF Survival Training requirements. *Pass/fail. No final. Sem hrs:* 3 *summer.*

Mil Tng 220. *Command Communications* 0 (2)
Development of the oral communicative skills essential for effective leadership. Preparation for instructional duties and leadership roles at the Air Force Academy and as officers in the United States Air Force. A study of principles and techniques of communication and instruction as they apply to the AF officer, and the practical application of these principles and techniques in military briefings and teaching exercises. *No final. Sem hrs:* 2 *fall and spring.*

Mil Tng 300. *Second Class Summer Training* 0 (0)
Six weeks of training in any *two* of the following three-week programs:

Mil Tng 301 — Duty with an Air Force Unit *(Operation Third Lieutenant Program)*
Mil Tng 302 — BCT Leadership Duty
Mil Tng 303 — RECONDO Training *(Duty with U.S. Army)*
Mil Tng 304 — Underwater Diving/Seal Training *(Duty with U.S. Navy)*
Mil Tng 305 — Boys State Leadership
Mil Tng 306 — Boy Scout Leadership *(Duty at Philmont Scout Ranch)*
Mil Tng 307 — Administrative Squadron Leadership
Mil Tng 310 — SERE Leadership
Armnshp 452 — Basic Airborne Training *(U.S. Army — Fort Benning)*
Armnshp 490 — Basic Free Fall Parachuting
Armnshp 493 — Parachute Instructor Leadership
Armnshp 481 — Soaring Instructor Leadership
Mil Tng 495 — Special Training Programs

Pass/fail. No final. Sem hrs: 5 *summer* (2½ *hrs per* 3-*week program; credit and duration of Mil Tng* 495 *option may vary).*

Mil Tng 320. *USAF Combat Operations and Tactics* 0 (0)
Offensive and defensive employment of USAF aerospace power. Includes planning, support, and procedures incident to generating and launching the USAF combat forces. *Final exam and weapons employment war gaming exercise. Sem hrs:* 2 *fall and spring.*

Mil Tng 400. *First Class Summer Training* 0 (0)
Six weeks of summer training in either of the following: a six-week program; a special program; or two three-week programs.

THREE-WEEK PROGRAMS — 2½ sem hrs each

Mil Tng 401 — Duty with an Air Force Unit *(Operation Third Lieutenant)*
Mil Tng 402 — BCT Leadership Duty
Mil Tng 403 — RECONDO Training *(Duty with U.S. Army)*

Mil Tng 404 — Underwater Diving/Seal Training *(Duty with U.S. Navy)*
Mil Tng 405 — Boys State Leadership
Mil Tng 406 — Boy Scout Leadership *(Duty at Philmont Scout Ranch)*
Mil Tng 407 — Administrative Squadron Leadership
Mil Tng 410 — SERE Leadership
Armnshp 452 — Basic Airborne Training *(U.S. Army — Fort Benning)*
Armnshp 490 — Basic Free Fall Parachuting
Armnshp 493 — Parachute Instructor Leadership
Armnshp 481 — Soaring Instructor Leadership

SIX-WEEK PROGRAMS — 5 sem hrs each
Mil Tng 408 — Air Training Command Leadership *(Duty with Air Force Recruits)*
Mil Tng 409 — Summer Research *(Duty with various research agencies)*
Armnshp 400 — T-41 Flying Training

SPECIAL PROGRAMS — 5 sem hrs each
For Lang 495 — Advanced Intensive French *(Preparation for French Exchange Duty)*
Mil Tng 495 — Special Training Programs

All are pass/fail courses with no final, except Armnshp 400 *and For Lang* 495 *which are graded courses with separate registration.*

Mil Tng 420. *Officer Transition* 0 (2)
Preparation for the transition from cadet to officer status. Instruction provides the cadet with personal and practical aspects of life and work in the Air Force with particular emphasis on career planning and the privileges, responsibilities and obligations of a Second Lieutenant entering his initial assignment. Offered the last half of spring semester. *Pass/fail. No final. Prereq:* 1/C *standing. Sem hrs:* ½ *spring.*

Music *(See Fine Arts)*

Navigation *(Nav)*

Offered by the Navigation Division of the Deputy Commandant for Military Instruction

Navigation 371. *Descriptive Astronomy* 1 (1)
Discussion of fundamental concepts of astronomy. Examination of the physical aspects of the solar system: the sun, moon, planets, comets and meteors. Introduction to the physical nature and distribution of the stars. Discussion of the structure and origin of the universe. Planetarium presentations and telescope observations of celestial objects. Field trip to a major observatory. *Final report. Sem hrs:* 2½ *fall or* 3 *spring.*

Navigation 470. *Navigation Indocrination* 1 (2)
Introduction to basic air navigation procedures and equipment. Includes classroom and simulator instruction in preparation for five T-29 flight missions. Encompasses air navigation from basic dead reckoning through map reading, radar, celestial and radio positioning techniques. Develops an insight into the requirements and responsibilities of a rated Air Force crew member through experience in a flying environment, on both local and cross-country flights. *Final exam. Prereq:* 3/C, 2/C *or* 1/C *standing. Sem hrs:* 3 *fall or spring.*

Navigation 490. *Navigation Concepts and Systems Development* 1 (1)
Discussion of the navigation problem, historical development of current navigation concepts and the application of these concepts in air navigation systems development. Analysis of navigation problems in the space environment. Laboratory application of navigation techniques and systems in the navigation trainers and T-29 aircraft. Field trip on T-29 aircraft to a facility involved in advanced navigation development and operations. *Final exam. Prereq: Nav* 470. *Sem hrs:* 3 *fall or spring.*

Philosophy *(Philos)*

Offered by the Department of Philosophy and Fine Arts

Philos 210. *Introduction to Philosophy* 0 (0)
Brief examinations of several classical and contemporary philosophical issues. Issues include problems in human knowledge, moral philosophy, social philosophy, and the philosophy of religion. *Final exam. Prereq:* 3/C *or* 2/C *standing; concurrent enrollment in Law* 210 *(for scheduling purposes). Must be completed prior to the sixth semester. Sem hr:* 1 *fall or spring.*

Philos 330. *Introduction to the Philosophy of Science* 1 (1)
Basic assumptions and principles of the sciences are analyzed. Emphasizes the nature of the scientific method, the status of scientific laws, concepts of theory construction and scientific explanation, the use of probability notions, problems involved in the social sciences, and the relation between the sciences and the humanities, especially in the formation of values. Specific problems in the life sciences, psychology, and physics are discussed. Some authors read include

Einstein, Hempel, Frank, Gamow, Beveridge, Toulmin, and Reichenbach. *Final exam. Prereq: Philos* 210. *Sem hrs:* 2½ *fall.*

Philos 350. *Philosophical Analysis* 1 (1)
Classical and contemporary techniques of conceptual analysis as reflected in the traditional problems of metaphysics, epistemology, and the philosophy of religion. *Final exam. Prereq: Philos* 210. *Sem hrs:* 2½ *fall.*

Philos 370. *Introduction to Symbolic Logic* 1 (1)
Propositional calculus, formal languages, truth tables, and proofs. Predicate calculus, models, Gentzen-type rules, axioms, quantifiers, and equality. Definitions. *Final exam. Prereq: Completed or enrolled in Comp Sci* 200 (230 *or* 240 *or* 254). *Sem hrs:* 3 *spring.*

Philos 382. *American Philosophy* 1 (1)
An examination of the philosophic background of Puritanism, the Revolutionary period, transcendentalism and pragmatism with special reference to the thought of major American philosophers such as Pierce, James, Royce, Santayana, Dewey, and Whitehead. *Final exam. Prereq: Philos* 210. *Sem hrs:* 3 *spring.*

Philos 400. *Great Religions of the World* 1 (1)
A comparative and critical study of the world's great religions which emphasizes the relation of religion to morality; the nature of religious aspirations; the spiritual influence of religion upon culture and society; the sacred scriptures; the concept of God, salvation, evil, and the afterlife. Includes a survey of religious thought and practice through a study of Christianity, Buddhism, Judaism, Hinduism, Confucianism, and Islam. *Final exam. Prereq: Philos* 210. *Sem hrs:* 2½ *fall or* 3 *spring.*

Philos 440. *Ethics* 1 (1)
Study of current moral issues as viewed from the background of a few of the Western ethical systems. Topics include the positions of Kant, Marx, Freud, Fromm, Dostoevski, and Ayn Rand, and the theories of Situation Ethics, Utilitarianism, and Existentialism. Issues considered include the problems of alienation, morality and war, relativism, egoism and altruism, authority and dissent, freedom and responsibility. *Final exam. Prereq: Philos* 210. *Sem hrs:* 2½ *fall or* 3 *spring.*

Philos 495. *Special Topics* 1 (1)
Selected topics in philosophy. Fall 1972 offering: Utopias, communal experiments and special ideals; spring 1973 offering; the Military Mind. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department (not more than* 3 *sem hrs).*

Philos 499. *Independent Study* 1 (0)
Philosophical research guided by an instructor. Topics and meetings arranged with the instructor. *No final. Prereq: Department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

Physical Education *(Phy Ed)*

Offered by the Department of Physical Education under the Director of Athletics

Phy Ed 105. *Competitive Athletics* 0 (0)
Intramural and/or intercollegiate athletics. *Pass/fail. Sem hr:* 1 *fall.*

Phy Ed 106. *Competitive Athletics/Physical Fitness Test* 0 (0)
Intramural and/or intercollegiate athletics plus passing cadet minimums on Physical Fitness Test. *Pass/fail. Sem hr:* 1 *spring.*

Phy Ed 100. *Basic Physical Training* 0 (0)
Preparation for strenuous physical education and athletics by development of physical strength, endurance, agility, and coordination by means of conditioning exercises, obstacle course, and sports competition. Physical fitness and swimming tests. Special instruction in swimming and conditioning as needed. *Pass/fail. Sem hrs:* 2 *summer.*

Phy Ed 120. *Gymnastics, Wrestling, Boxing, Swimming, Individual Carry-Over Skill* 0 (2)
Instruction in gymnastics, wrestling, boxing, swimming, and one carry-over skill (either tennis, golf, squash, or handball). Remedial instruction in swimming and physical fitness for designated cadets. *Sem hrs:* 1¼ *fall and spring.*

Phy Ed 205-206. *Competitive Athletics/Physical Fitness Test* 0 (0)
Intramural and/or intercollegiate athletics plus passing cadet minimums on Physical Fitness Test. *Pass/fail. Sem hrs:* 1 *fall and* 1 *spring.*

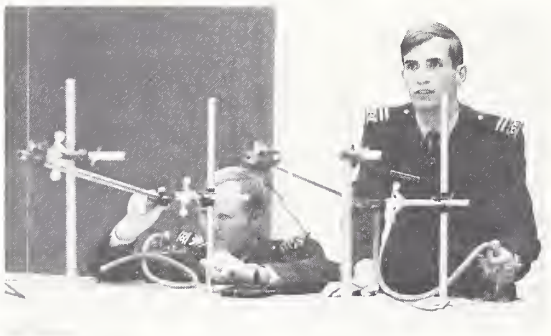
Phy Ed 220. *Swimming, Judo, and Two Carry-Over Skills* 0 (2)
Instruction in swimming, judo, and two carry-over skills (tennis, golf, squash, or handball). Carry-over skill received in Phy Ed 120 will not be repeated. *Sem hr:* 1 *fall and spring.*

Phy Ed 305-306. *Competitive Athletics/Physical Fitness Test* 0 (0)
Intramural and/or intercollegiate athletics plus passing cadet minimums on the Physical Fitness Test. *Pass/fail. Sem hrs:* 1 *fall and* 1 *spring.*

Phy Ed 320. *Unarmed Combat, Instructor Training, Volleyball, and one Carry-Over Skill* 0 (2)
Instruction in unarmed combat, instructor training, volleyball, and one remaining carry-over skill (tennis, golf, squash, or handball). *Sem hr:* 1 *fall and spring.*

Phy Ed 405-406. *Competitive Athletics/Aerobics Test* 0 (0)
Intramural and/or intercollegiate athletics and must pass Aerobics Fitness Test. *Pass/fail. Sem hrs:* 1 *fall and* 1 *spring.*

Phy Ed 420. *Advanced Unarmed Combat, Badminton, Physical Fitness Methods, Two Electives, or Physical Fitness Conditioning* 0 (2)
Instruction in advanced unarmed combat, badminton, physical fitness methods, two electives (either advanced tennis, golf, handball, squash, unarmed combat or diving, scuba, fencing, racquetball, and volleyball). Physical conditioning or remedial swimming will be provided for designated cadets. *Prereq: Phy Ed* 120, 220, *or* 320 *as pertains to carry-over skills. Sem hrs:* 1¼ *fall and spring.*



Physics *(Physics)*

Offered by the Department of Physics

Physics 211. *General Physics* 1 (1)
Fundamental principles of kinematics, dynamics, gravitation, and introductory electromagnetics with emphasis on conservation laws and use of vectors and calculus. Lab. *Final exam. Prereq: Math* 112, 151, *or* 191, *or completed or enrolled in Math* 210, *or department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

Physics 212. *General Physics* 1 (1)
Fundamental principles of electricity, magnetism, and wave motion with emphasis on conservation laws and use of vectors and calculus. Includes introduction to selected topics in modern physics. Lab. *Final exam. Prereq: Physics* 211; *Math* 112, 152, 191, *or* 210, *or department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

Physics 335. *Intermediate Physics* 1 (1)
Special relativity, origin of quantum theory, atomic and molecular structure, electromagnetic radiation, nuclear forces and reactions, fundamental particles, radioactivity, and special topics of current interest. *Final exam. Prereq: Physics* 212. *Sem hrs:* 2½ *fall or* 3 *spring.*

Physics 341. *Laboratory Techniques* 1 (2)
Basic introduction to laboratory skills and techniques to develop instrumental techniques and reinforce concepts of physical behavior. *No final. Prereq: Physics* 212. *Sem hrs:* 2½ *fall.*

Physics 355. *Classical Mechanics* 1 (1)
Fundamentals of classical mechanics including Newton's Lagrange's, and Hamilton's formulations. Emphasizes relationship of general principles to quantum theory. *Final exam. Prereq: Physics* 211; *Math* 351. *Sem hrs:* 3 *spring.*

Physics 363. *Introduction to Modern Physics I* 1 (1)
Review of mechanics and introduction to special relativity. Dual nature of light and selected topics in physical optics. Introduction to quantum theory; application to atomic and molecular structure, theory of solids, structure and properties of the nucleus. *Final exam. Prereq: Physics* 212. *Sem hrs:* 2½ *fall or* 3 *spring.*

Physics 364. *Introduction to Modern Physics II* 1 (1)
Continuation of Physics 363. *Final exam. Prereq: Physics* 363 *in preceding semester. Sem hrs:* 2½ *fall or* 3 *spring.*

Physics 365. *Statistical Physics* 1 (1)
Thermodynamics, kinetic theory, and statistical mechanics. Applications include low temperature physics, magnetization, electrical conductivity of gases, paramagnetism, boson gases, and electrons as a fermion gas. *Final exam. Prereq: Math* 351; *Physics* 211; *or department permission. Sem hrs:* 3 *spring.*

Physics 370. *Introductory Space Science* 1 (1)
A conceptual survey of the space environment including such topics as planetary atmospheres, solar phenomena, trapped-radiation belts, radio astronomy, and extraterrestrial life. *Term paper. Prereq: Physics* 212. *Sem hrs:* 2½ *fall or* 3 *spring.*

Physics 382. *Laser Physics and Light* 1 (1)
Theory of laser operation. Optical phenomena including interference, polarization, coherence, and absorption. Solid-state, liquid, chemical, and gaseous lasers. Various applications including weapons, communications, and holography. *Final exam. Prereq: Physics* 335 *or* 363. *Sem hrs:* 3 *spring.*

Physics 430. *Introduction to Modern Physics* 1 (1)
Applications of modern physics with emphasis in the field of civil engineering, including radiological shielding considerations, fission reactors, nuclear weapons effects, and earth-moving applications of nuclear explosives. Fundamental topics of modern physics including electromagnetic radiation, x-rays, mass-energy equivalence, and radioactivity. Biological effects of radiation. *Final exam. Prereq: Physics* 212. *(Not open to students with credit for Physics* 335 *or* 364.) *Sem hrs:* 2½ *fall or* 3 *spring.*

Physics 461. *Electromagnetic Theory I* 1 (1)
Basic formulation of electromagnetic field theory including the development of Maxwell's equations and their application to electrostatics, magneto-statistics, and the transmission of electromagnetic radiation through dielectrics, conductors, and ionized gases. Derivation of multipole radiation theory and the theory of fields of rapidly moving charges. The devel-

opment of the covariance of electrodynamics. *Final exam. Prereq: Physics* 212; *Math* 352; *completed or enrolled in Math* 351; *or department permission. Sem hrs:* 2½ *fall.*

Physics 462. *Electromagnetic Theory II* 1 (1)
Continuation of Physics 461. *Final exam. Prereq: Physics* 461 *in the preceding semester. Sem hrs:* 3 *spring.*

Physics 473. *Introduction to Quantum Mechanics* 1 (1)
Basic postulates of wave mechanics, techniques of solution of the wave equation, perturbation theory with interdisciplinary illustrations and applications. *Final exam. Prereq: Physics* 212; *Math* 352; *completed or enrolled in Math* 351; *or department permission. Sem hrs:* 2½ *fall.*

Physics 490. *Advanced Physics Lab* 2 (3)
Selected experiments to develop laboratory skills and reinforce the concepts of physical ideas. *No final. Prereq: Physics* 341 *or department permission. Sem hrs:* 6 *spring.*

Physics 495. *Special Topics* 1 (1)
Selected topics in physics. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department (not more than* 3 *sem hrs).*

Physics 496. *Science and the Future* 1 (1)
An analysis of the relationship of science to current and future problems. Critically examines the potential applications of modern science to these problems and the general effect of possible solutions on the armed forces, industry and society. *Final report. Prereq:* 1/*C or* 2/*C standing. Sem hrs:* 3 *spring.*

Physics 499. *Independent Study* 1-2 (0)
Individual research under the direction of a faculty member. *No final. Prereq: Department permission. Sem hrs:* 2½ *to* 5 *fall or spring.*

Physics 563. *Quantum Theory I* 1 (1)
Review of wave mechanics. Postulational basis of quantum mechanics. Operator techniques. Angular momentum, spin, symmetry, and statistics. Development of perturbation theory and variational techniques. Radiative transitions and introduction to the Heisenberg approach. Quantum theory applied to physical problems. *Final exam. Prereq: Physics* 212; *Math* 352; *completed or enrolled in Math* 351. *Sem hrs:* 3 *fall.*

Physics 564. *Quantum Theory II* 1 (1)
Continuation of Physics 563. *Final exam. Prereq: Physics* 563 *in preceding semester. Sem hrs:* 3 *spring.*

Political Science *(Pol Sci)*

Offered by the Department of Political Science

Pol Sci 211. *The American Political System* 1 (1)
First of a two-course sequence introducing central concepts of political science. Develops the theories of democracy, constitutionalism, and federalism in the context of American domestic politics. Emphasizes the functional aspects of the national system of government and concludes with an analysis of contemporary issues and problems. *Final exam. Pol Sci* 211 *and* 212 *must be taken in consecutive semesters. Sem hrs:* 2½ *fall or* 3 *spring.*

Pol Sci 212. *The International Political System* 1 (1)
Second of a two-course sequence introducing central concepts of political science. International politics as a subject of study. Emphasis on the nature of the international political system, the actions and interactions of states in this system, and contemporary trends in international politics. *Final exam. Prereq: Pol Sci* 211 *in preceding semester. Sem hrs:* 2½ *fall or* 3 *spring.*

Pol Sci 232. *Comparative Foreign Governments* 1 (1)
A comparative study of selected political systems. Emphasis is placed on the structure and functions of government and the political process. *Final exam. Prereq: Pol Sci* 211. *Sem hrs:* 3 *spring.*

Pol Sci 349. *Political Analysis* 1 (1)
Introduction to the philosophical and methodological foundations of contemporary political science. Emphasis on current research methods in domestic and international politics: interview/survey research, content analysis, simulation and experimentation, and systematic case studies. *Final exam. Sem hrs:* 2½ *fall or* 3 *spring thru spring* 1973; *thereafter* 2½ *fall only.*

Pol Sci 352. *Modern Political Theory* 1 (1)
Political thought from Machiavelli to the present. The relationship between basic theoretical assumptions and concepts such as community, justice, freedom, order, law, and rule. *Final exam. Prereq: Pol Sci* 211. *Sem hrs:* 3 *spring.*

Pol Sci 371. *Political Parties and the Democratic Process* 1 (1)
Roles and activities of political parties and interest groups in the American governmental process. *Final exam. Prereq: Pol Sci* 211. *Sem hrs:* 2½ *fall.*

Pol Sci 383. *American Foreign Policy: Process and Issues* 1 (1)
Analysis of U. S. foreign policy in the post-1945 period. Examination of the policy-making environment and the roles of the President, the Department of State, the Congress, and various executive departments. Case studies. *Final exam. Prereq: Pol Sci* 212. *Sem hrs:* 2½ *fall.*

Pol Sci 384. *Politics of Urban America* 1 (1)
Analysis of the problems facing the American city and the conditions which have created these problems and hindered their solution. Emphasis on the role of local, state, and federal government in meeting the urban crisis, including government relationships at all

levels, revenue sharing, the role of "super-urban" governments, and the political forces at work in large American cities. *Final exam. Prereq: Pol Sci* 211. *Sem hrs:* 3 *spring.*

Pol Sci 385. *Public Administration* 1 (1)
Theory and practice of public administration in a political system. The relationship of the theoretical roots to the environment, characteristics, and accountability of administrative behavior. Emphasis on policy development and implementation. Comparative administration in a changing world. *Final exam. Prereq: Pol Sci* 211. *Sem hrs:* 2½ *fall.*

Pol Sci 412. *Defense Policy* 1 (1)
Relationships among military policy, foreign policy, and national security policy. Formulation of defense policy in terms of external threats, American political climate, and impact of military technology. Institutional machinery for making strategy. *Final exam. Prereq: At least 3/C standing or department permission. Sem hrs:* 2½ *fall or* 3 *spring.*

Pol Sci 421. *The Politics of Insurgency* 1 (1)
Analysis of the political and cultural environment which gives rise to modern revolutionary warfare in the developing world. Emphasis on the political, social, and economic sources of discontent which create conditions conducive to internal conflict. Political and military strategy and tactics of insurgency warfare and their implications for the available American response are examined. *Final exam. Sem hrs:* 2½ *fall.*

Pol Sci 456. *International Organization and Military Security Systems* 1 (1)
International organization focusing upon the United Nations' role in international politics, and an analysis of regional security systems. *Final exam. Prereq: Pol Sci* 212. *Sem hrs:* 2½ *fall.*

Pol Sci 460. *Comparative Defense Policy* 1 (1)
A comparative study of selected defense policies and policy making with emphasis on the Soviet Union, China, selected Western European states, Japan and India. Case studies examine variations in doctrine, weapons acquisition, and force deployment and use. *Final exam. Sem hrs:* 3 *spring.*

Pol Sci 472. *The Communist System* 1 (1)
Dynamics of world communism with emphasis on the political process in the Soviet Union and its role in communist system politics. The relationship between communist ideology and power. *Final exam. Prereq: Pol Sci* 212. *Sem hrs:* 3 *spring.*

Pol Sci 473. *Politics of the Far East* 1 (1)
A survey of the political cultures, institutions, and processes in China and Japan. Other Asian nations are examined as they relate to China and Japan and present significant political problems. *Final exam. Prereq: Pol Sci* 212. *Sem hrs:* 2½ *fall.*

Pol Sci 474. *Politics of the European Community* 1 (1)
Political developments in Western Europe from the Marshall Plan to the present. Potentialities of a united Europe as a third force, and consideration of both institutional arrangements and political strategies of the Western European nations. *Final exam. Prereq: Pol Sci* 211. *Sem hrs:* 2½ *fall.*

Pol Sci 476. *Politics of Latin America* 1 (1)
Comparative study of selected Latin American political systems. Fundamental factors affecting political stability in Latin America; the interrelationship of economic, military, political, and social factors in the growth of Latin American political systems; and the interhemisphere relations. *Final exam. Prereq: Pol Sci* 211. *Sem hrs:* 3 *spring.*

Pol Sci 477. *Politics of the African States* 1 (1)
Analysis of the major political trends within Sub-Saharan Africa during the Twentieth Century. The colonial systems, interaction of colonial systems and independence movements, and the post-independence era are surveyed. Course concludes with a comparison of several contemporary African political systems. *Final exam. Prereq: Pol Sci* 212. *Sem hrs:* 2½ *fall.*

Pol Sci 482. *Congress* 1 (1)
Congress as a political institution. Topics include elections, constituent relations, policy making and leadership, relations with administrative agencies, the committee system, and seniority and procedure. *Final* exam. *Prereq: Pol Sci* 211. *Sem hrs:* 3 *spring beginning spring* 1974.

Pol Sci 487. *Civil-Military Relations* 1 (1)
Examines a broad range of contemporary political interrelationships between the military establishment and society. Themes include the size, scope and cost of military establishments, U.S. miliary influence within the executive branch, congressional-military-industrial relationships, military involvement in foreign policy, and military social and cultural values. *Final exam. Prereq: Pol Sci* 211. *Sem hrs:* 2½ *fall.*

Pol Sci 491. *Problems in International Affairs* 2 (2)
An examination of selected aspects of international politics with emphasis on advanced analytical techniques. The POLIDOX game and individual case studies utilizing the interdisciplinary background gained from introductory courses in international affairs. *Final report. Last offering: Fall* 1972. *Prereq: Pol Sci* 212. *Sem hrs:* 5 *fall.*

Pol Sci 495. *Special Topics* 1 (1)
Selected topics in political science. *Final exam or final report. Prereq: Department permission. Sem hrs and offering time determined by department (not more than* 3 *sem hrs).*

Pol Sci 499. *Independent Study* 1-2 (0)
Individual study or research in a carefully selected topic conducted on a tutorial basis. *Research paper or directed reading. Prereq: Department permission. Sem hrs:* 2 *to* 5 *fall or spring.*

Pol Sci 561. *Contemporary Political Theory* 1 (2)
Selected topics in contemporary theory with attention to both the study of normative issues and the development and content of scientific political theory and methodology. *Final exam. Prereq: Pol Sci* 352. *Sem hrs:* 2½ *fall.*

Pol Sci 565. *International Politics: Problems in the Maintenance of Security* 1 (2)
Theories of international political behavior. Emphasis on the major sources of international conflict taking an interdisciplinary approach by contrasting the contributions of authorities from many fields with the traditional explanations of international relations specialists. *Research paper. Prereq: Pol Sci* 212. *Sem hrs:* 2½ *fall.*

Pol Sci 566. *International Politics: Methods and Techniques of Analysis* 2 (2)
Rigorous examination of the methods and techniques used by scholars to investigate international political phenomena. The relationship of these methods to the philosophy of science. *Final exam. Prereq: Pol Sci* 212. *Sem hrs:* 4 *spring.*

Pol Sci 572. *Soviet Foreign Policy* 1 (2)
Examination of Soviet foreign policy with emphasis on the period since 1945. Role of ideology, national interest, and domestic politics. Comparison of Soviet and American foreign policy in respect to process and goals. *Final exam. Prereq: Pol Sci* 212. *Sem hrs:* 3 *spring.*

Russian

(See Foreign Languages)

Science *(Science)*

Offered by various departments and divisions as noted

Science 350. *Linear Systems Analysis* 1 (2)
Modeling of physical systems. Joint study of mechanical and electrical systems described by linear first and second order differential equations with constant coefficients. Electrical analogies, frequency response, introduction to Bode plots, and introduction to the analog computer. Includes operation of linear computer elements and readout devices, programming, selecting maximum values, magnitude scaling, time scaling, static check, and program check. Lab. *Final project. Prereq: Physics* 212; *completed or enrolled in El Engr* 333 *or* 351; *completed or enrolled in Math* 351. *(Administered by Engineering Science Division.) Sem hrs:* 2½ *fall or* 3 *spring.*

Science 402. *Professional Engineering Development* 0 (1)
Review of mathematics, chemistry, physics, and engineering sciences in preparation for the Colorado Engineer-in-Training examination. Taking this exam is optional at end of course. *Prereq:* 1/*C standing; any Basic or Engineering Sciences major. (Administered by Department of Civil Engineering) Sem hrs: none spring.*

Science 451. *Engineering Applications of Digital Computers* 1 (1)
A study of computer oriented methods to solve a wide range of problems in the engineering sciences. Problems formulated so that solutions can be obtained from available computer techniques and/or programs. *Final project. Prereq: Completed or enrolled in any Engineering Sciences major. (Administered by Department of Astronautics and Computer Science) Sem hrs:* 2½ *fall.*

Science 452. *Bioengineering* 1 (1)
Application of engineering techniques to solution of problems in the life sciences. Review of selected life science systems, mathematical model making, and design of instrumentation for physiological monitoring. *Final report. Prereq: El Engr* 334 *or* 352. *(Administered by Department of Life and Behavioral Sciences in fall, Department of Electrical Engineering in spring) Sem hrs:* 2½ *fall or* 3 *spring.*

Science 480. *Introduction to Applied Astronomy* 1 (1)
Spherical astronomy topics of positions, motions, stellar coordinate systems, time, and navigation. Stellar astronomy topics of distances, motions, luminosities, masses, distribution of stars, clusters, galaxies, and cosmology. Planetarium, telescope, and T-29 flight laboratory experience. Field trip to a prominent astronomy or space facility. *Final project. Prereq:* 2/*C or* 1/*C standing or department permission. (Administered by Navigation Division) Sem hrs:* 2½ *fall or* 3 *spring.*

Science 571. *Space Propulsion Systems* 1 (2)
Chemical and nuclear rockets, plasma jets, ion and photon drives, and magnetohydrodynamics. Power generation in space. *Final exam. Prereq: Aero* 461; *completed or enrolled in Physics* 335. *(Administered by Department of Aeronautics). Sem hrs:* 3 *spring.*

Sociology

(See Behavioral Sciences)

Spanish

(See Foreign Languages)

ACADEMIC MAJORS AND GRADUATE PROGRAMS*

Aeronautical Engineering Major

Administered by the Department of Aeronautics

The Major in Aeronautical Engineering is based on a broad sequence of courses in aeronautical engineering with specialization in one of four options: aerodynamics, flight mechanics, aerospace propulsion, or aerospace structures. Cadets who successfully complete this major are awarded the degree of Bachelor of Science in Aeronautical Engineering.

The following substitutions in the core curriculum are required:

Aero 351. Thermodynamics	replaces Aero 331
Aero 361. Fluid Dynamics I	replaces Aero 332
El Engr 351-352. Introduction to Electronic Systems I and II	replaces El Engr 333-334

In addition to the core curriculum, the following courses are required for the major:

Aero 350. Aeronautical Laboratory
Aero 363. Heat Transfer
Aero 461. Propulsion I
Aero 456. Flight Mechanics
Math 351. Applied Differential Equations
Math 352. Applied Vector Analysis
Mech 361. Vector Engineering Mechanics
Mech 362. Mechanics of Materials
Physics 335. Intermediate Physics

A four course unit design sequence in aerodynamics, aerospace propulsion, aerospace structures, or flight mechanics

One course unit from the offerings of the Department of Aeronautics, selected with approval of the faculty advisor

Three course units from the offerings of the Basic or Engineering Sciences Divisions (these may include Armnshp 400 or Nav 470)

One course unit from the offerings of all departments

*NOTE: Although graduate courses will be retained in the curriculum, Cooperative Graduate Programs with participating universities may be discontinued effective with the Class of 1976.

Aeronautical Engineering Graduate Program

Administered by the Department of Aeronautics

Through a cooperative arrangement with Purdue and Stanford Universities, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Science degree in Aeronautical and Astronautical Engineering while at the Air Force Academy. Selected cadets then complete the master's degree requirements after resident study at Purdue or Stanford immediately following graduation from the Academy.

To become a candidate for this program, cadets must complete the requirements for the Aeronautical Engineering major plus the following five courses, some of which may be used to fill requirements in the major:

Aero 551. Advanced Flight Mechanics
Mech 554. Advanced Dynamics
Science 571. Space Propulsion Systems

Two advanced course units of mathematics, selected with approval of the faculty advisor.

Astronautical Engineering Major

Administered by the Department of Astronautics and Computer Science

The Major in Astronautical Engineering is designed to provide a broad foundation for effective performance in the aerospace engineering field and as preparation for future graduate study.

The following substitutions in the core curriculum are required:

Aero 351. Thermodynamics	replaces Aero 331
Aero 361. Fluid Dynamics I	replaces Aero 332
El Engr 351-352. Introduction to Electronic Systems I and II	replaces El Engr 333-334

In addition to the core curriculum the following courses are required for the major:

Aero 456. Flight Mechanics
Astro 451. Astrodynamics
Astro 450. Principles of Airborne Fire Control
Astro 452. Linear Control System Analysis
Astro 453. Advanced Astrodynamics
Astro 454. Inertial Navigation and Automatic Guidance
Math 351. Applied Differential Equations
Math 352. Applied Vector Analysis
Mech 361. Vector Engineering Mechanics
Mech 362. Mechanics of Materials
Physics 335. Intermediate Physics
Science 350. Linear System Analysis

Two course unit design sequence in control systems or space vehicles (Astro 465/464 or Astro 467/464)

Two course units from offerings of Engineering Science Division (only one course unit if you complete the basic math sequence in place of the intermediate or advanced)

Two course units from the offerings of all departments (these may include Armnshp 400)

Astronautical Engineering Graduate Program

Administered by the Department of Astronautics and Computer Science

Through a cooperative arrangement with several universities, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Science degree in Aeronautical and Astronautical Engineering while at the Air Force Academy. Selected cadets then complete the master's degree requirements after resident study at a selected civilian university immediately following graduation from the academy. To become a candidate for this program, cadets must complete the requirements for the Astronautical Engineering major plus the following two courses:

Astro 550. Advanced Methods in Astronautics I
Astro 551. Advanced Methods in Astronautics II

Atmospheric Science Minor

Administered by the Department of Physics

The Minor in Atmospheric Science is for the student interested in the environment in which the Air Force operates. It provides a background especially valuable to any rated officer and a foundation for possible future graduate study in Atmospheric Science. By completing the following five courses, cadets can earn a minor in Atmospheric Science in conjunction with a major in Basic Sciences or a major in Physics:

Atm Sci 250. Introduction to Atmospheric Science
Atm Sci 351. Physical Processes in the Atmosphere
Atm Sci 444. Dynamics of the Atmosphere
Atm Sci 450. Thermodynamics and Statics of the Atmosphere
Physics 370. Introductory Space Science

Basic Sciences Major

Administered by the Basic Sciences Division

The Major in Basic Sciences is intended for the cadet whose ability and interests lie in the area of the basic sciences, or who is interested in an area that requires a broad basic science background, but who does not elect to specialize in one of the available basic science majors. This major allows the cadet considerable latitude in selecting courses that will meet his academic goals. The cadet is required to diversify within the division by having to complete a minimum of two courses from three of the four basic science departments. At the same time he may specialize by using the option spaces provided. For a cadet desiring an additional area in the applied sciences for future graduate studies, a minor in Atmospheric Science is available.

In addition to the core curriculum, the following courses are required for the major:

Two course units from the offerings of one of the departments in the Basic Sciences Division
Two course units from the offerings of a second department in the Basic Sciences Division
Two course units from the offerings of a third department in the Basic Sciences Division
Three course units from the offerings of the Basic Sciences Division
Four course units from the offerings of the Basic or Engineering Sciences Divisions
Four course units from the offerings of any department (these may include Armnshp 400)

Behavioral Sciences Major

Administered by the Department of Life and Behavioral Sciences

The Major in Behavioral Sciences provides the cadet with a facility for understanding human behavior, the capability for handling human problems throughout his career as an Air Force officer, and the basis for his continuing development as a military leader. The major is prepared for a complete spectrum of psychological services in the Air Force with emphasis on human engineering research, clinical psychology, and psychological operations, warfare and intelligence. The factual knowledge and concepts developed are contemporary in scope and of particular importance to the education of all officers, especially those contemplating a career in psychological research, applied engineering and personnel psychology, clinical psychology, operations, plans and intelligence.

In addition to the core curriculum the following courses are required for the major:

Beh Sci 331. Statistical Methods Applied to Behavorial Sciences
Beh Sci 350. Physiological Psychology
Beh Sci 352. Social Psychology
Beh Sci 372. Experimental Psychology
Beh Sci 380. Psychology of Personality
Beh Sci 435. Psychology of Learning
Beh Sci 455. Systems of Psychology
Beh Sci 470. Psychology of Perception
Beh Sci 480. Professional Issues in Psychology

Three additional course units from the Behavioral Science offerings.

Five course units from the offerings of all departments (these may include Armnshp 400)

Behavioral Sciences Graduate Program

Administered by the Department of Life and Behavioral Sciences

Through a cooperative arrangement with Purdue University, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Science degree in Psychology while at the Air Force Academy. Selected cadets then

complete the master's degree requirements after resident study at Purdue immediately following graduation from the Academy.
To become a candidate for this program, cadets must complete the requirements for a Behavioral Sciences major plus the following courses:

Beh Sci 331. Statistical Methods Applied to Behavioral Science
Beh Sci 350. Physiological Psychology
Beh Sci 352. Social Psychology
Beh Sci 372. Experimental Psychology
Beh Sci 380. Psychology of Personality
Beh Sci 435. Psychology of Learning
Beh Sci 455. Systems of Psychology
Beh Sci 470. Psychology of Perception
Beh Sci 480. Professional Issues in Psychology
Beh Sci 570. Industrial Psychology
Beh Sci 577. Engineering Psychology
Beh Sci 599. Independent Study
Five course units from the offerings of all departments (these may include Armnshp 400)

Chemistry Major

Administered by the Department of Chemistry

The Major in Chemistry is recommended for those who are interested in chemical or biochemical research or applications. It provides fundamental knowledge in analytical, inorganic, organic and physical chemistry and allows the cadet to select one or two of these areas for advanced study. The major is designed to prepare cadets for a junior officer position in research, development, or graduate training. It emphasizes the use of laboratory methods for reinforcement of lecture material and individual research projects. Cadets successfully completing this major are awarded the degree of Bachelor of Science in Chemistry.

In addition to the core curriculum, the following courses are required for the major:

Chem 222. Analytical Chemistry (only required for those who do *not* take Chem 101-102 or Chem 121-122)
Chem 233-234. Organic Chemistry I and II
Chem 243-244. Organic Chemistry I and II Lab
Chem 333. Instrument Analysis
Chem 335-336. Physical Chemistry I and II
Chem 344. Physical Chemistry Lab
Chem 431. Theoretical Inorganic Chemistry
Chem 443. Advanced Physical Chemistry Lab
Math 351. Applied Differential Equations
Two science course units selected with approval of the faculty advisor
Two course units from the offerings of the Department of Chemistry, selected with approval of the faculty advisor
Two course units from the offerings of all departments (these may include Armnshp 400)
This major fulfills the recommendations of the Committee on Professional Training of the American Chemical Society. Cadets in this major should take German or Russian to satisfy the core language requirement.

Chemistry Graduate Program

Administered by the Department of Chemistry

Through a cooperative arrangement with Michigan State University, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Science degree in Chemistry while at the Air Force Academy. Selected cadets then complete the master's degree requirements after resident study at Michigan State immediately following graduation from the Academy.
To become a candidate for this program, cadets must complete the requirements for a Chemistry major plus three additional course units selected from 400-level chemistry options or certain 400-level science or engineering courses approved by the department. A cadet is advised to take two units in chemistry and one unit from another department.

Civil Engineering Major

Administered by the Department of Civil Engineering

The Major in Civil Engineering provides a well balanced program stressing the fundamentals common to the many areas of the civil engineering profession. The major is designed to prepare cadets for duty in the Air Force with some specialization in the civil engineering discipline including research, development, design, and construction of facilities to support manned and unmanned weapon systems and the space program. The major provides excellent preparation for graduate study in any of the civil engineering areas. Cadets success-

fully completing this major are awarded the degree of Bachelor of Science in Civil Engineering.

In addition to the core curriculum, the following courses are required for the major:

Civ Engr 340. Surveying
Civ Engr 366. Fundamental Hydraulics
Civ Engr 432. Construction Engineering
Civ Engr 441. Soil Mechanics
Civ Engr 450. Properties of Materials Laboratory
Civ Engr 451. Structural Analysis
Civ Engr 453. Structural Steel Design
Civ Engr 455. Reinforced Concrete Design
Math. 351. Applied Differential Equations
Mech 361. Vector Engineering Mechanics
Mech 362. Mechanics of Materials
Physics 430. Introduction to Modern Physics

Three course units from the following four:

Civ Engr 352. Water Supply and Waste Disposal
Civ Engr 442. Foundation Engineering
Civ Engr 456. Structural Engineering
Mech 355. Materials Science

Two course units from the offerings of all departments (these may include Armnshp 400)

Civil Engineering Graduate Program

Administered by the Department of Civil Engineering

Through a cooperative arrangement with the University of Illinois, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Science degree in Civil Engineering while at the Academy. Selected cadets then complete the master's degree requirements after resident study at Illinois immediately following graduation from the Academy.

To become a candidate for this program, cadets must complete the requirements for the major in Civil Engineering plus three additional courses as designated by the Head of the Department of Civil Engineering.

Computer Science Major

Administered by the Department of Astronautics and Computer Science

The Major in Computer Science provides a broad background in computer programming, languages, systems and applications with emphasis on electronic digital computers. The aim of this major is to provide officers who are highly qualified in the rapidly growing areas of computer research and the application of computers to complex scientific, engineering and information systems.

In addition to the core curriculum, the following courses are required for the major:

Astro 451. Astrodynamics
Comp Sci 362. Computer Simulation
Comp Sci 381. Intermediate Digital Computer Programming
Comp Sci 463. Information Retrieval
Comp Sci 483-484. Programming Systems I and II
El Engr 453. Analog Computation
Math 341. Introductory Numerical Analysis
Math 351. Applied Differential Equations
Math 357. Probability
Mech 361. Vector Engineering Mechanics
Mgt 460. Operations Analysis I
Philos 370. Introduction to Symbolic Logic

Two course units related to computer applications or design, selected with approval of the faculty advisor (these may include Armnshp 400)

Two course units from the offerings of all departments (these may include Armnshp 400)

Computer Science Graduate Program

Administered by the Department of Astronautics and Computer Science

Through a cooperative arrangement with several universities, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Science degree in Computer Science while at the Air Force Academy. Selected cadets then complete the master's degree requirements after resident study at a selected civilian university immediately following graduation from the Academy.

To become a candidate for this program, cadets must complete the requirements for the Computer Science major plus two graduate level courses approved by the Head of the Department of Astronautics and Computer Science.

Economics Major

Administered by the Department of Economics and Management

The Major in Economics is designed to provide the cadet with the capability of performing economic analysis, especially of resource allocation problems associated with national security. The major is constructed on a solid foundation of economic theory and is extended by training in quantitative analysis techniques and by study in alternative specialized fields of economics.

In addition to the core curriculum, the following courses are required for the major:

Econ 333. Price Theory
Econ 456. Macroeconomic Theory
{ Econ 465. Introduction to Econometrics
or
{ Mgt 360. Quantitative Decision Methods
Geog 372. Economic Geography
Mgt 331. Statistical Decision Methods

Six course units from the offerings of the Department of Economics and Management, selected with approval of the faculty advisor

Six course units from the offerings of all departments (these may include Armnshp 400)

Economics Graduate Program

Administered by the Department of Economics and Management

Through a cooperative arrangement with a civilian university, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Arts degree in Economics while at the Air Force Academy. Selected cadets then complete the master's degree requirements after resident study at the university immediately following graduation from the Academy.
To become a candidate for this program, cadets must complete the requirements for the major in Economics with options chosen to include the following courses:

Econ 350. International Economics
Econ 375. Monetary Economics
Econ 458. Quantitative Economic Theory
Econ 465. Introduction to Econometrics
Econ 466. Seminar in Econometrics
Econ 471. Development of Economic Analysis

In addition to the core curriculum and the Economics major requirements, the following two courses are required for this program:

Econ 551-552. Advanced Economic Theory I and II

Electrical Engineering Major

Administered by the Department of Electrical Engineering

The Major in Electrical Engineering is designed to combine a broad education in the engineering sciences with a study in depth in the electronics, communications, and system response fields. Cadets who successfully complete this major are awarded the degree of Bachelor of Science in Electrical Engineering. The following substitution in the core curriculum is required:

El Engr 362. Intermediate Electronics
replaces El Engr 334

In addition to the core curriculum, the following courses are required for the major:

El Engr 361. Intermediate Circuit Analysis
El Engr 363. Advanced Circuit Theory
El Engr 364. Advanced Electronics
El Engr 365. Fundamentals of Electromagnetic Fields
El Engr 366. Advanced Electrical Energy Conversion
El Engr 453. Analog Computation
El Engr 462. Communication Engineering
El Engr 477. Electromagnetic Transmission and Radiation
Math 351. Applied Differential Equations
Mech 361. Vector Engineering Mechanics
Physics 335. Intermediate Physics

One design course unit from the Engineering Sciences Division

Two course units from the offerings of the Basic or Engineering Sciences Divisions (except electrical engineering), selected with approval of the faculty advisor

Three course units from the offerings of all departments (these may include Armnshp 400)

Electrical Engineering Graduate Program

Administered by the Department of Electrical Engineering

Through a cooperative arrangement with Stanford University, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Science degree in Electrical Engineering while at the Air Force Academy. Selected cadets then complete the master's degree requirements after seven months' resident study at Stanford immediately following graduation from the Academy.

To become a candidate for this program, cadets must (1) complete the requirements for the major in Electrical Engineering with appropriate options approved by the faculty advisor, and (2) have been accepted for post graduate Air Force flight training.

Engineering Mechanics Major

Administered by the Department of Engineering Mechanics

The Major in Engineering Mechanics is designed to provide engineers with a broad base of knowledge in fundamental engineering with depth in the areas of dynamics, structural mechanics, stress analysis, and materials engineering. The major provides an excellent foundation for further education in a variety of fields. Cadets who successfully complete this major are awarded the degree of Bachelor of Science in Engineering Mechanics.

The following substitutions in the core curriculum are required:

Aero 351. Therodynamics	replaces Aero 331
Aero 361. Fluid Dynamics I	replaces Aero 332
Astro 451. Astrodynamics	replaces Astro 432
El Engr 351-352. Introduction to Electronic Systems I and II	replaces El Engr 333-334

In addition to the core curriculum, the following courses are required for the major:

Aero 456. Flight Mechanics
Math 351-352. Applied Differential Equations
Math 352. Applied Vector Analysis
Mech 350. Experimental Stress Analysis
Mech 355. Materials Science
Mech 361. Vector Engineering Mechanics
Mech 362. Mechanics of Materials
Mech 424. Advanced Strength of Materials
Mech 453. Aerospace Structures
{ Mech 464. Engineering Design
or
{ Mech 499. Independent Study

A four course unit sequence in mechanics or materials
Two course units from the offerings of the Basic or Engineering Sciences Divisions (these may include Armnshp 400)
One course unit from the offerings of all departments (this may be Armnshp 400)

Engineering Mechanics Graduate Program

Administered by the Department of Engineering Mechanics

Through a cooperative arrangement with several civilian universities, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Science degree in Engineering Mechanics while at the Air Force Academy. Each cadet selected then completes the master's degree requirements after resident study at the civilian university of his choice which has a strong specialty in his discipline of interest.

To become a candidate for this program, cadets must complete the requirements for the Engineering Mechanics major in either the mechanics or materials sequence.

Engineering Sciences Major

Administered by the Engineering Sciences Division

The Major in Engineering Sciences is designed to provide a broad education in the engineering sciences as preparation for effective performance in an engineering specialty and for future graduate study in engineering. Cadets who successfully complete this major are awarded the degree of Bachelor of Science in Engineering Sciences.

The following substitutions in the core curriculum are required:

Aero 351. Thermodynamics	replaces Aero 331
Aero 361. Fluid Dynamics I	replaces Aero 332
El Engr 352. Introduction to Electronic Systems II	replaces El Engr 334

In addition to the core curriculum, the following courses are required for the major:

Aero 456. Flight Mechanics
Aero 461. Propulsion I
Astro 451. Astrodynamics
Astro 452. Linear Control System Analysis
Math 351. Applied Differential Equations
Math 352. Applied Vector Analysis
Mech 355. Materials Science
Mech 361. Vector Engineering Mechanics
Mech 362. Mechanics of Materials
{ Physics 335. Intermediate Physics
or
Physics 430. Introduction to Modern Physics
Science 350. Linear Systems Analysis
One course unit from the Department of Electrical Engineering
Two course units of additional engineering science courses
Two course units from the offerings of all departments (these may include Armnshp 400)
Two course unit design sequence in one of the following areas: Airlift Vehicles, Propulsion, Control Systems, Space Vehicles, Analog Computation, Aerospace Structures, Metallurgy, Materials

General Engineering Major

Administered by the Engineering Sciences Division

The Major in General Engineering is designed for the student whose interests are in the general field of engineering but who desires a broad background rather than a particular specialization. The major establishes a route to the engineering degree for the student taking the basic math sequence and permits the widest selection of options among the engineering majors.

The following substitutions in the core curriculum are recommended:

Aero 351. Thermodynamics	for Aero 331
Aero 361. Fluid Dynamics I	for Aero 332

In addition to the core curriculum, the following courses are required for the major:

Math 351. Applied Differential Equations
Science 350. Linear Systems Analysis
Two course units from the offerings of the Department of Aeronautics
Two course units from the offerings of the Department of Astronautics and Computer Science
One course unit from the offerings of the Department of Civil Engineering
Two course units from the offerings of the Department of Electrical Engineering
Two course units from the offerings of the Department of Engineering Mechanics
One course unit from the offerings of the Department of Mathematics
Three course units from the offerings of the Engineering Sciences Divisions (two course units if the basic math sequence is taken to fulfill core requirements—these may include Armnshp 400)
Three course units from the offerings of all departments (these may include Armnshp 400)

General Studies Major

Administered by the Directorate of Counseling and Scheduling

The Major in General Studies is offered to those cadets who wish to broaden their knowledge in several disciplines and who desire considerable latitude in selection of their courses.

In addition to the core curriculum, the following courses are required for the major:

Six course units from the offerings of one of the four Academic Divisions
Four course units from the offerings of a second Academic Division
Two course units from the offerings of a third Academic Division
Four course units from the offerings of all departments (these may include Armnshp 400 or Nav 470)

Geography Major

Administered by the Department of Geography

The Major in Geography provides an understanding of the complex geographic relationships in the world today. This major requires a foundation in both cultural and physical geography. Based on this foundation, a cadet may concentrate in depth in physical, cultural, or regional geography. The geography major is of particular value to those cadets contemplating Air Force careers in operations planning, foreign area analysis, intelligence, or cartography.

In addition to the core curriculum, the following courses are required for the major:

Geog 280. Physical Geography
Geog 340. Cartography
Geog 350. Cultural Geography
Geog 360. Climatology
{ Geog 370. Political Geography
or
Geog 372. Economic Geography
Geog 491. Seminar in the Basis of Geographic Thought
Geog. 492. Seminar in Design of Geographic Research
One course unit of regional geography
Four course units from the offerings of the Department of Geography
Five course units from the offerings of all departments (these may include Armnshp 400)

Geography Graduate Program

Administered by the Department of Geography

Through a cooperative arrangement with the University of Oklahoma, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Arts degree in Geography while at the Air Force Academy. Selected cadets then complete the master's degree requirements after resident study at the university.

To become a candidate for this program, cadets must complete the following courses:

Geog 280. Physical Geography
Geog 340. Cartography
Geog 350. Cultural Geography
Geog 360. Climatology
{ Geog 370. Political Geography
or
Geog 372. Economic Geography
Geog 591. Graduate Seminar in the Basis of Geographic Thought
Geog 592. Graduate Seminar in Design of Geographic Research
One course unit of regional geography
Five course units from the offerings of the Department of Geography
Six course units from the offerings of all departments (these may include Armnshp 400)

History Major

Administered by the Department of History

The Major in History provides an understanding of contemporary problems by studying those forces in the past which have shaped the world of the present. The factual knowledge imparted and the perspective developed are of importance to the education of all professional Air Force officers and are of particular value for those cadets contemplating careers in operations, plans, or intelligence activities. The major emphasizes the development of historical judgment, research techniques, and writing skills.

In addition to the core curriculum, the following courses are required for the major:

History 330. History Methods
{ History 332. United States Diplomatic History
or
History 479. American Institutions and Ideas
{ History 345. Modern European History
or
History 438. Western Institutions and Ideas
{ History 300. The United States in a Changing World*
or
Pol Sci 412. Defense Policy*
Three course units of History
{ Two course units of History
or
Two course units of intermediate Foreign Language
Two course units from the following:
Philosophy 400
Political Science Option
Geography 350
Regional Geography Option
Six course units from the offerings of all departments (these may include Armnshp 400)
A cadet may concentrate his studies in a specific region (Western Europe, Far East, Latin America, Soviet / East Europe, American Studies) by selecting the following courses as his History open options: Regional History, Regional Geography, Regional Political Science, Regional Literature, Regional Economics and Philosophy 400.

*Both required for History major.

History Graduate Program

Administered by the Department of History

Through a cooperative arrangement with Indiana University, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Arts degree in History while at the Air Force Academy. Selected cadets then complete the Master's degree requirements after

seven months' resident study at Indiana immediately following graduation from the Air Force Academy.

To become a candidate for this program, cadets must meet the requirements for the History major and complete the following courses:

History 332. United States Diplomatic History
History 345. Modern European History
History 438. Western Institutions and Ideas
History 553. Colloquium: Diplomatic History
History 562. Colloquium: Military History of the United States
History 564. Colloquium: Area Military History
For Lang 253. Intermediate I
For Lang 254. Intermediate II
For Lang 450. Advanced Reading and Translation

Humanities Major

Administered by the Humanities Division

The Major in Humanities is offered for those cadets who wish to increase their knowledge in the humanistic areas of language, history, literature, philosophy, and the fine arts.

In addition to the core curriculum, the following courses are required for the major:

{ Anthro 351. Cultural Anthropology and History 438. Western Institutions and Ideas
or
{ One course unit of intermediate foreign language and One course unit from the offerings of any department

Fine Art 451. Introduction to the Arts
Fine Art 458. Music Appreciation
Two course units of US and/or area history
{ English 406. Western World Literature* or Philos 440. Ethics*

Three course units of literature courses from the offerings of the Department of English
Two course units from offerings of the Department of Philosophy and Fine Arts
Five course units from the offerings of any department (these may include Armnshp 400)

International Affairs Major

Administered by the Department of Political Sciences

The major in International Affairs is designed to develop Air Force officers with a comprehensive understanding of contemporary political problems and issues. Courses in the major form the basis for Air Force duties across a broad range of fields allowing the officer to be a generalist while also pursueing assignments requiring skills in research and analysis. Careers particularly suited to this major are operations and command duties, plans, attache duty, military assistance, military-political affairs, and staff and command positions within the Air Force, Unified Commands, Joint Staff, Department of Defense, and National Security Council.

In addition to the core curriculum, the following courses are required for the major:

Pol Sci 232. Comparative Politics
Pol Sci 349. Political Analysis
Pol Sci 352. Modern Political Theory
{ Pol Sci 412. Defense Policy or History 300. The United States in a Changing World

Between six to eight course units approved by an advisor in one of the following areas of concentration: International Politics, Western Europe, Far Eastern, Latin American, Soviet Studies, National Security Policy, or American Politics

Between five to seven course units from the offerings of all departments (these may include Armnshp 400)

International Affairs Graduate Program

Administered by the Department of Political Science

Through a cooperative arrangement with The Fletcher School of Law and Diplomacy at Tufts University, cadets who demonstrate

exceptional aptitude may start working toward a Master of Arts degree in International Affairs while at the Air Force Academy. Selected cadets then complete the master's degree requirements after resident study at The Fletcher School immediately following graduation from the Academy.

To become a candidate for this program, cadets must complete the requirements for the International Affairs major with the following courses substituting for four of the open options:

For Lang 450. Advanced Reading and Translation
Pol Sci 561. Contemporary Political Theory
Pol Sci 565. International Politics: Problems in the Maintenance of Security
{ Pol Sci 572. Soviet Foreign Policy
or
History 553. Colloquim: Diplomatic History }

Life Sciences Major

Administered by the Department of Life Sciences

The Major in Life Sciences is intended for the student whose abilities and interests lie in the area of life science and its application to the aerospace mission of the Air Force. It is designed to prepare cadets for a junior officer position in research, development or graduate training. It emphasizes the use of laboratory methods not only for reinforcement of lecture material but also for individual research projects. This major is a suggested preparatory sequence for advanced training in medicine or the biological sciences.

In addition to the core curriculum, the following courses are required for the major:

Life Sci 263. Introduction to Life Science
Life Sci 280. Fundamentals of Ecology
Life Sci 363. Genetics
Life Sci 373-4. Bio-Organic Molecular Processes I and II
Life Sci 375-6. Laboratory Techniques in Molecular Processes I and II
Life Sci 444. Radiation Biology and Biotechnology
Life Sci 452. Space Physiology
Life Sci 460. Modern Biological Concepts
Life Sci 465-466. Functional Anatomy I and II
One course unit from the offerings of the Department of Life Sciences
Four course units from the offerings of all departments (these may include Armnshp 400 or Nav 470)

Cadets desiring a life sciences major and recommendation to medical training must complete Life Sci 431-432 (Microbiology I and II) and Life Sci 461-462 (Developmental Anatomy I and II). Life Sci 431-432 fill the requirements for Life Sci 465-466; Life Sci 461 (two course units) fill the requirements for Life Sci 280 and one open option; Life Sci 462 (two course units) fills the requirements for Life Sci 452 and one open option.

Management Major

Administered by the Department of Economics and Management

The Major in Management provides the cadet with the tools, techniques, and attitudes that will assist him in making significant contributions as a junior officer. A principal objective is to accelerate the student's ability to act in a mature and meaningful fashion under conditions of responsibility. The decision-making process is the principal environment toward which most of the material is directed.

In addition to the core curriculum the following courses are required for the major:

Mgt 330. Financial Accounting
Mgt 331. Statistical Decision Methods
Mgt 334. Organizational Behavior: Theory
Mgt 339. Introduction to Management Science
Mgt 360. Quantitative Decision Making
Mgt 363. Industrial Relations
Mgt 435. Managerial Economics
Mgt 332. Managerial Accounting
Mgt 437. Managerial Finance
Mgt 460. Operations Analysis I
Geog 372. Economic Geography
Law 462. Government Contract Law
Three course units related to the management area selected with approval of the faculty advisor
Five course units from the offerings of all departments (these may include Armnshp 400)

Management Graduate Program

Administered by the Department of Economics and Management

Through a cooperative arrangement with the University of California at Los Angeles,

cadets who demonstrate exceptional aptitude may earn credit toward a Master of Business Administration degree or Master of Science degree in Business Administration while at the Air Force Academy. Selected cadets then complete the master's degree requirements after resident study at UCLA immediately following graduation from the Academy.

To become a candidate for this program, cadets must complete the requirements for the Management major with options chosen to include the following courses:

Econ 333. Price Theory
Econ 456. Macroeconomic Theory
Mgt 332. Managerial Accounting
Mgt 437. Managerial Finance
Mgt 460. Operations Analysis I
Mgt 464. Organizational Behavior: Practice

plus a choice of one of the following courses:

Econ 373. Public Finance
Econ 375. Montary Economics
Econ 477. Defense Economics
Math 360. Linear Algebra
Mgt 462. Operations Analysis II
Philos 330. Introduction to the Philosophy Science

In addition, the following graduate seminars are required for this program:

{ Mgt 534. Seminar in Logistic Management
or
Mgt 536. Seminar in Management Theory and Analysis }
Mgt 544. Senior Seminar in Organizational Theory

Mathematics Major

Administered by the Department of Mathematics

The Major in Mathematics is designed to provide a thorough background for analyzing and solving the complex technical, operational and management problems in today's modern Air Force. Sequences in analysis, applied math, and operations research provide depth of training in fundamentals. Application of fundamentals is stressed through elective courses in other disciplines. This program provides excellent preparation for graduate work in mathematics, the physical sciences, engineering, and operations research.

In addition to the core curriculum the following courses are required:

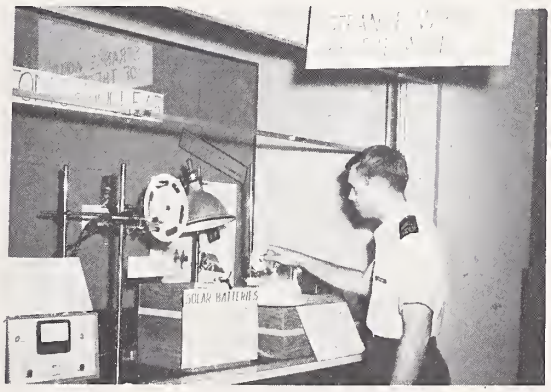
Math 357. Probability
Math 360. Linear Algebra
Math 365. Modern Algebra
Math 366. Advanced Calculus I
Math 368. Intermediate Differential Equations
Math 495(F). Introduction to Mathematical Optimization
One of three-course sequences in either Mathematical Analysis, Applied Math, or Operations Research
Three course units related to mathematics applications, selected from an approved list of courses
Five course units from the offerings of all departments (these may include Armnshp 400)

Mathematics Graduate Program

Administered by the Department of Mathematics

Through a cooperative arrangement with a major university, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Science degree in Applied Mathematics while at the Air Force Academy. Selected cadets then complete the master's degree requirements after resident study at the university immediately following graduation from the Academy.

To become a candidate for this program, cadets must complete the requirements for the Mathematics major with three option courses selected to include: two mathematics graduate level courses and one additional 400 or 500 level mathematics course not already used to satisfy academic requirements of the Mathematics major.



Physics Major

Administered by the Department of Physics

The Major in Physics concentrates on basic physical principles and mathematics. It provides an excellent academic background for a wide range of technical assignments within the Air Force, particularly in the field of research and development. It also provides a sound basis for graduate work in physics, related applied sciences, and a wide variety of engineering science disciplines. For the cadet desiring a study area in applied physics, a minor in Atmospheric Science is available. Three Atmospheric Science courses may be substituted for the following: Physics 365; one course unit from the offerings of the Department of Mathematics; one course unit from the offerings of the Basic or Engineering Sciences Divisions (except physics).

In addition to the core curriculum, the following courses are required for the major:

Math 351. Applied Differential Equations
Math 352. Applied Vector Analysis
Two course units from the offerings of the Department of Mathematics
Physics 341. Laboratory Techniques
Physics 355. Classical Mechanics
Physics 363-364. Introduction to Modern Physics I and II
Physics 365. Statistical Physics
Physics 461. Electromagnetic Theory I
Physics 473. Introduction to Quantum Mechanics
Physics 490. Advanced Physics Lab (two course units)
One course unit from the offerings of the Department of Physics, selected with approval of the faculty advisor
One course unit from the offerings of the Basic or Engineering Sciences Divisions (except physics), selected with approval of the faculty advisor
Two course units from the offerings of all departments (these may include Armnshp 400)

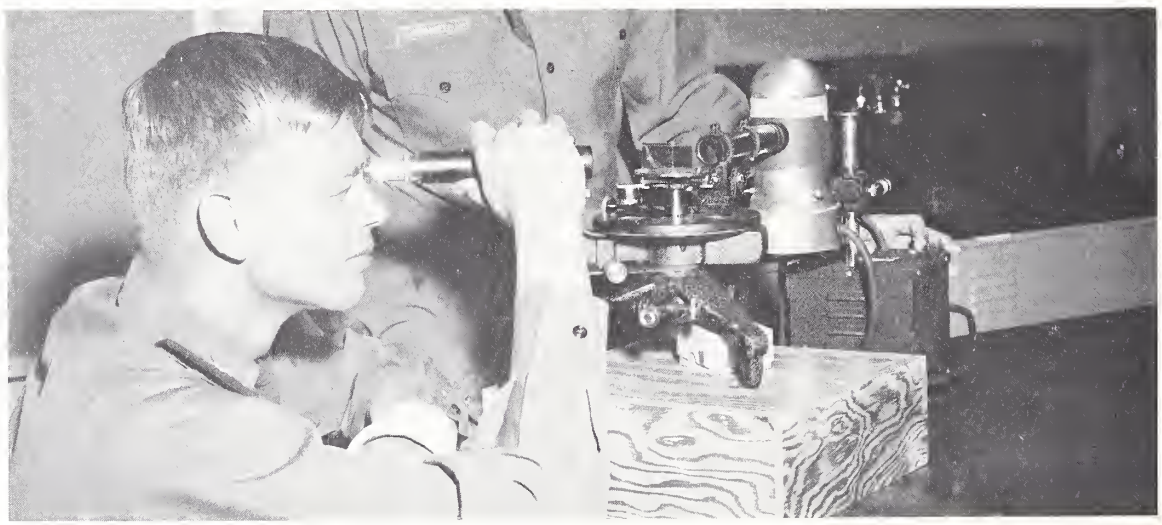
Physics Graduate Program

Administered by the Department of Physics

Through a cooperative arrangement with Ohio State University, cadets who demonstrate exceptional aptitude may earn credit toward a Master of Science degree in Physics while at the Air Force Academy. Selected cadets then complete the master's degree requirements after resident study at Ohio State immediately following graduation from the Academy.

To become a candidate for this program, cadets must complete the Physics major with options chosen to include the following courses:

Math 360. Linear Algebra
Physics 462. Electromagnetic Theory II
Physics 563. Quantum Theory I (taken in place of Physics 473, Introduction to Quantum Mechanics)
Physics 445. Special Topics
or
Physics 499. Independent Study



PERSONNEL DIRECTORY

Includes members of the Faculty and other personnel involved in cadet mission activities during the spring semester, 1972.

ACADEMIC FACULTY

Dean of the Faculty and Permanent Professor

BRIG. GEN. WILLIAM T. WOODYARD
B.S., A.M., University of Missouri; Ph.D., University of Denver

COL. ROGER R. BATE, Vice Dean of the Faculty; Permanent Professor of the Department of Astronautics and Computer Science; Chairman of the Engineering Science Division — B.S., United States Military Academy; B.A., B.Sc., M.A., Oxford University; Ph.D., Stanford University

LT. COL. JOHN J. JONES, Faculty Executive; Tenure Associate Professor of History — A.B., Nebraska Wesleyan University; M.A., Ph.D., University of Missouri

MAJ. ARTHUR D. KERR, Director of Graduate Programs; Lecturer of Economics and Management — B.S., United States Air Force Academy; M.B.A., Harvard University

CAPT. GERALD S. HAUN, Aide to the Dean — B.S., Capital University

CAPT. RICHARD P. SHAY, Director of Logistical Support and Plans — B.B.A., State University of Iowa

CMSGT. JAIME MALAVE, Director of Faculty Administration — B.S., University of Puerto Rico

Counseling and Scheduling

LT. COL. JOHN E. ARNET, Director of Counseling and Scheduling; Associate Professor of Chemistry — B.S., United States Military Academy; M.A., University of Texas

MAJ. ROBERT E. deMICHAELS, Chief, Data Processing; Assistant Professor of Physics — B.S., Massachusetts Institute of Technology; M.S., St. Louis University

MAJ. ROBERT L. HAUSSMAN, Humanities and Social Science Counselor; Instructor of Economics and Management — B.S., University of Iowa; M.Ed., University of North Dakota; M.S., University of Southern California

MAJ. CROSBY A. HOUSTON, Executive and Curriculum Officer; Associate Professor of Geography — B.S., M.Ed., Rutgers—The State University; M.S., Trinity University; Ed.D., University of Northern Colorado

MAJ. JAMES S. TINSLEY, Chief, Academic Counseling; Assistant Professor of Aeronautical Engineering — B.S.M.E., Texas A&M University; M.S.M.E., University of Colorado

CAPT. JAMES R. HOLLEY, Academic and Career Counselor; Instructor of Mathematics — B.A., Texas A&M University; M.S., Air Force Institute of Technology

CAPT. JAMES C. METSALA, Academic and Carecr Counselor — B.S., Wisconsin State University

CAPT. FRED H. WILLIAMSON, JR., Chief, Academic Scheduling; Assistant Professor of History — B.A., M.A., University of Maryland

Instructional Technology

COL. LELAND C. ENDSLEY, Tenure Director of Instructional Technology; Associate Professor of Geography — B.S., University of New Mexico; M.S., Ohio State University

LT. COL. OVID L. BAYLESS, Deputy Director of Instructional Technology; Associate Professor of English — B.A., M.A., Baylor University; Ph.D., University of Denver

CAPT. ROBERT G. PRIEST, Associate for Audiovisual Communications — B.A., University of Oklahoma; M.A., Troy State University

CAPT. ARLEN E. DIAMOND, Special Audiovisual Communications Project Officer — B.A., Kansas State University; M.A., University of South Dakota

Academy Libraries

Director of Libraries

LT. COL. CLAUDE J. JOHNS, JR., Director of Libraries and Tenure Professor of Political Science — B.S., M.S., Florida State University; Ph.D., University of North Carolina

Assistant Directors

DONALD J. BARRETT, Assistant Director for Public Services — B.S., College of St. Thomas; M.A., University of Minnesota

LT. COL. GLENN A. BETHANY, Assistant Director for Technical Services — B.A., University of Kansas

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CAPT. ROBERT M. LAWRENCE, Executive Officer — B.S., Ohio State University

Acquisitions Division

BARBARA M. IVEY, Chief, Acquisitions Division — B.A., M.L., Kansas State Teachers College

ROBERT L. MIGNEAULT, Chief, Serials Branch — B.A., University of New Hampshire; M.A., Denver University

Cataloging Division

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RITA A. JONES, Cataloger — A.B., Western Maryland College; M.A., University of Denver

T. VERONICA THENNES, Cataloger — B.A., M.A., Kansas State Teachers College

Reference Division

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ROBERT S. SHAFFER, Reference Librarian — B.S., Bowling Green State University; M.A., Indiana University

OTTIE K. SUTTON, Reference Librarian — B.A., B.L.S., University of Wisconsin

Special Collections

ALTA A. THOMPSON, Special Collections Librarian — A.B., M.A., University of Northern Colorado; M.A.L., University of Denver

Community Center Library

ALICE C. HAYES, Community Center Librarian — A.B., University of Colorado; B.S.L.S., University of Denver

DOROTHY J. DELFINO, Community Center Librarian — B.S., M.L.S., University of Hawaii

Medical Library

HELEN CHURCH, Medical Librarian — B.A., Ohio State Teachers College; M.A., University of Denver

The Frank J. Seiler Research Laboratory (AFSC)

COL. MILTON D. SPRINKEL, Commander; Associate Professor of Chemistry — B.S., Oklahoma State University; M.S., Purdue University

LT. COL. HAROLD BECK, Deputy Plans and Programs — B.A., Brooklyn College; M.A., University of California at Los Angeles

LT. COL. JOHN PAUL HYDE, Director of Aerospace-Mechanics Sciences; Assistant Professor of Astronautics — B.S., University of Cincinnati; M.S., Ph.D., University of Pittsburgh

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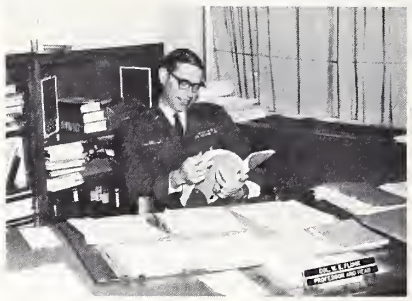

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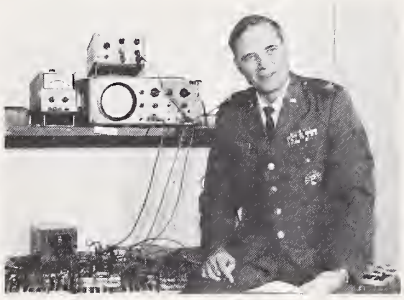

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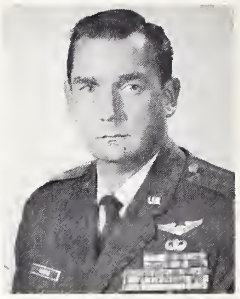

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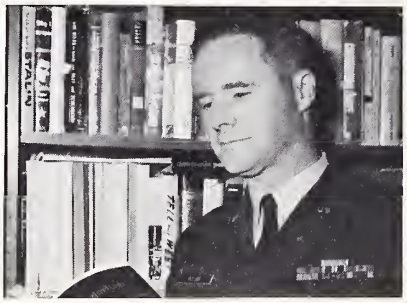

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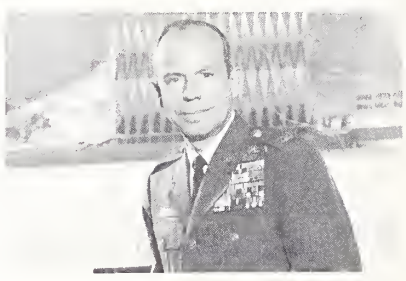

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Department of Physical Education

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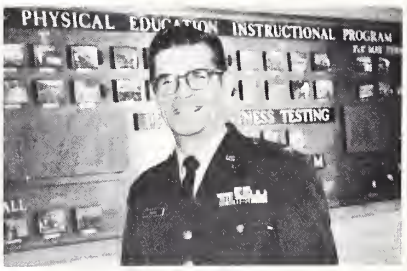
Assistant Director of Athletics and Head of the Department of Physical Education
B.S., United States Military Academy; M.A., Columbia University



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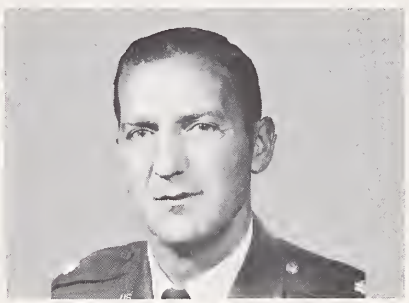
DICK A. SMITH, Diving Coach; Assistant Professor of Physical Education — B.S., M.Ed., University of Southern California

NICHOLAS G. TOTH, Fencing Coach; Assistant Professor of Physical Education — Central Institute of Sports and Fencing Academy, Budapest, Hungary



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MAJ. JAMES R. GEIST, Assistant Coach — B.S., University of Arizona

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JOHN MATCHEFTS, Assistant Coach — B.S., University of Michigan

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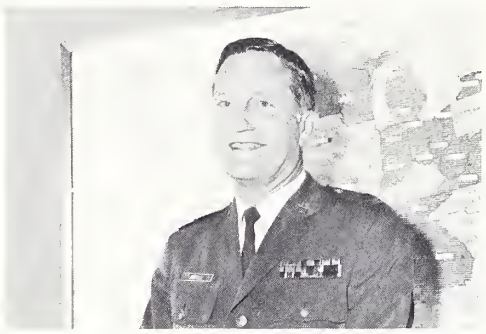
ARNE U. ARNESEN, Head Track and Cross Country Coach; Assistant Professor of Physical Education — B.S., University of Wisconsin; M.Ed., Springfield College



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NAME					AGE
ADDRESS *(Number and Street)*					
CITY			STATE		ZIP CODE
NAME OF YOUR SCHOOL					GRADE
PRESENT STANDING IN CLASS (Mark only the highest) ☐ Top 10% ☐ Top 25% ☐ Top 50%					
FURNISH THE FOLLOWING SCORES IF AVAILABLE					
PSAT		CEEB		ACT	
VERBAL	MATH	VERBAL APT	MATH APT	ENGLISH	MATH
Please ☐ send ☐ do not send me additional Academy literature.					

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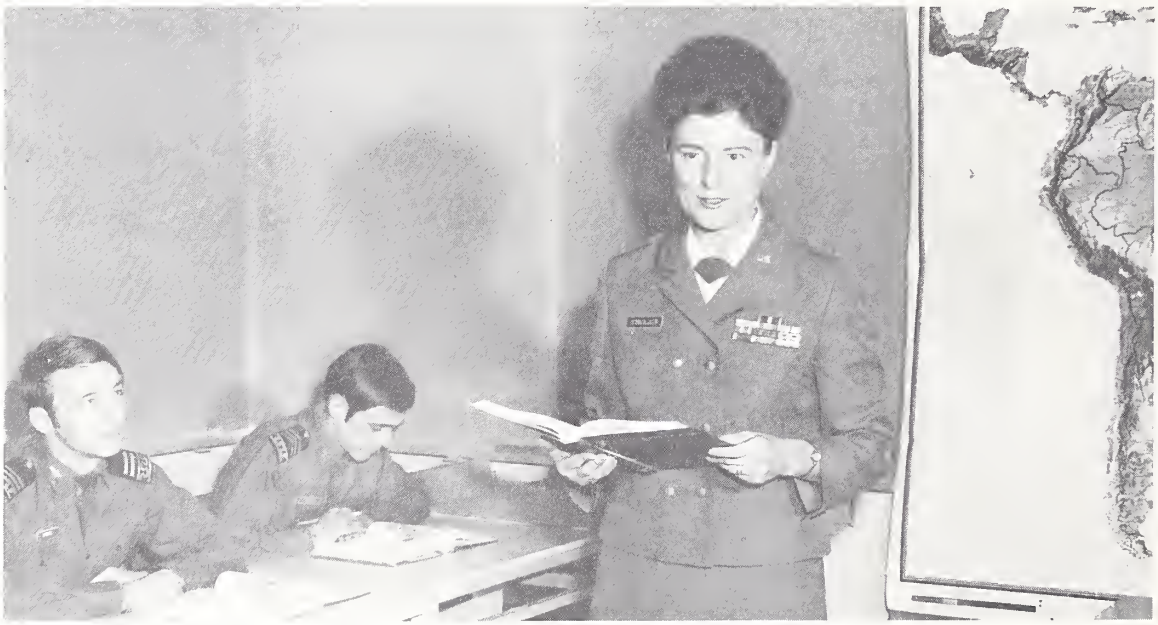
VERBAL	MATH	VERBAL APT	MATH APT	ENGLISH	MATH
Please ☐ send ☐ do not send me additional Academy literature.					

Brigadier General William T. Woodyard, Dean of the Faculty, congratulates members of the Cadet Forensic Association who have won a number of trophies in intercollegiate debate and speech contests during the 1971-72 academic year. From left: Cadet 1/C Don Peppers, General Woodyard, Cadet 1/C Rich Sirmons, and Cadet 3/C Byron Woodbury.



Major Vivienne Sinclair, Instructor of Spanish in the Department of Foreign Languages, is the first WAF officer to be assigned to the Air Force Academy Faculty.

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FURNISH THE FOLLOWING SCORES IF AVAILABLE					
PSAT		CEEB		ACT	
VERBAL	MATH	VERBAL APT	MATH APT	ENGLISH	MATH
Please ☐ send ☐ do not send me additional Academy literature.					

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PRESENT STANDING IN CLASS (Mark only the highest) ☐ Top 10% ☐ Top 25% ☐ Top 50%					
FURNISH THE FOLLOWING SCORES IF AVAILABLE					
PSAT		CEEB		ACT	
VERBAL	MATH	VERBAL APT	MATH APT	ENGLISH	MATH
Please ☐ send ☐ do not send me additional Academy literature.					

Brig. General Walter T. Galligan, Commandant of Cadets, presented a plaque to C/1C John B. Slade in recognition of the Cadet Chorale's performance in State Fair of Texas ceremonies at the Cotton Bowl. Mr. James Roger Boyd, chorale director, looked on.

The Cadet Chorale of the United States Air Force Academy, under the direction of Mr. James Roger Boyd.

CADET UNIFORM INSIGNIA

SHOULDER BOARDS

RANK

1st Class

C/COLONEL

C/LT COL

C/MAJOR

C/CAPTAIN

C/FIRST LT

C/SECOND LT

2nd Class

C/CM SGT

C/SM SGT

SQDN
FIRST SGT

C/M SGT

C/T SGT

CADET
UNRANKED

3rd Class

C/S SGT

CADET UNRANKED

4th Class

BASIC CADET

INSIGNIA OF ACHIEVEMENT

SUPT'S LIST

DEAN'S LIST

COMM'S LIST

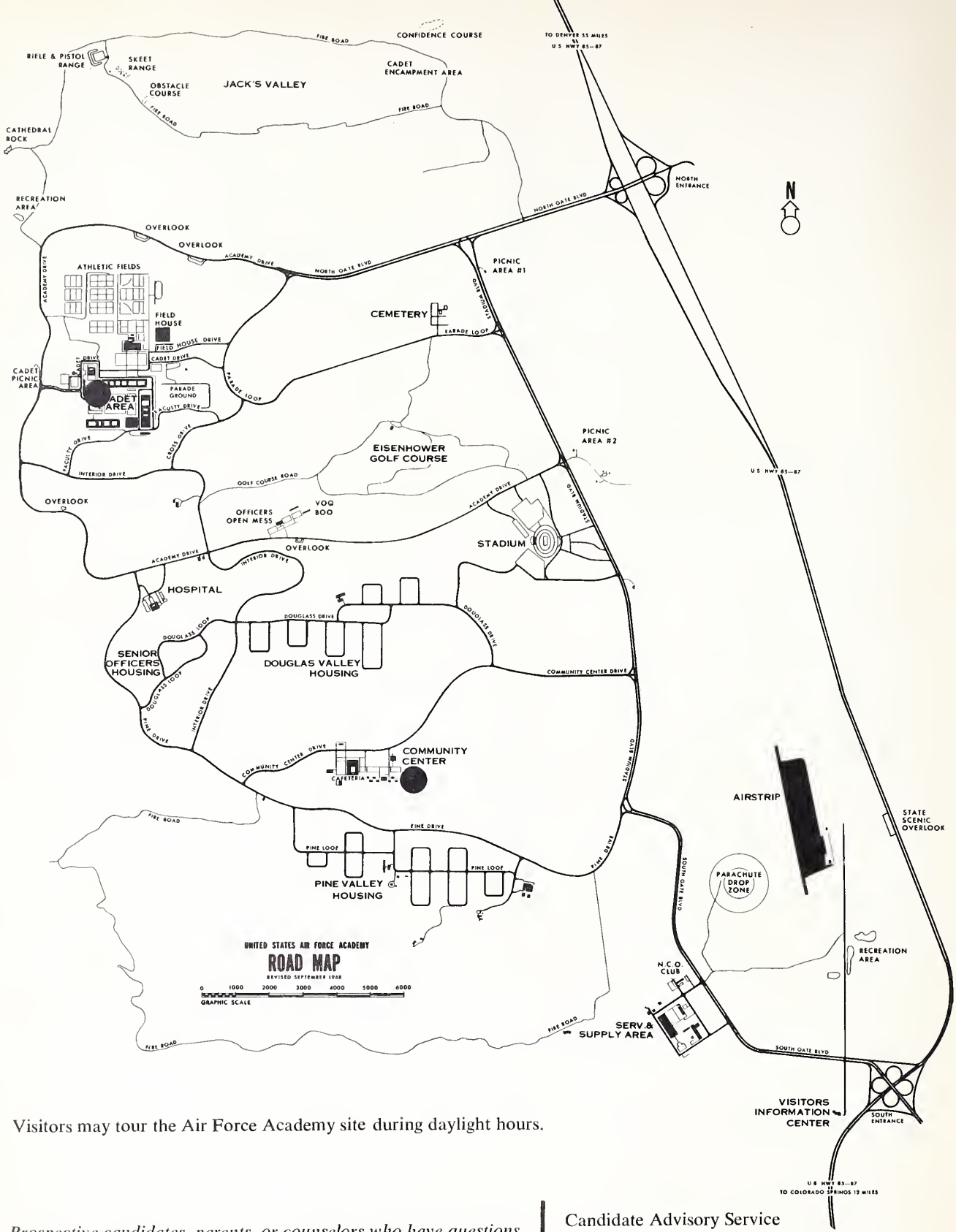
SABER AND HOLDER

Saber is worn by
First Class Cadet Officers
during ceremonial formations

CAP INSIGNIA

BREASTPLATE

INDEX



Visitors may tour the Air Force Academy site during daylight hours.

Prospective candidates, parents, or counselors who have questions not answered by the information in this catalog may write to:

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Colorado 80840

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